

BULLETIN
DE LA
SOCIÉTÉ ENTOMOLOGIQUE
D'ÉGYPTE



ONZIÈME ANNÉE

1918



BULLETIN
DE LA
SOCIÉTÉ ENTOMOLOGIQUE
D'ÉGYPTE

FONDÉE LE 1^{er} AOUT 1907

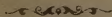
*Fatti non foste a viver come bruti,
Ma per seguir virtude e conoscenza*
DANTE



Sa Hautesse le Sultan Fouad 1^{er} a daigné prendre la Société
sous son Haut Patronage

Année 1918

1^{er} et 2^{me} FASCICULES : JANVIER-JUIN

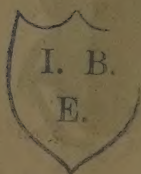


LE CAIRE
IMPRIMERIE PAUL BARBEY
1918

BULLETIN

SOCIÉTÉ ENTOMOLOGIQUE

DÉCRYPTÉ



BULLETIN

DE LA

SOCIÉTÉ ENTOMOLOGIQUE D'EGYPTE



Membres du Bureau pour 1918

Président. S.E. YACoub ARTIN PACHA
Vice-Président. . . . MM. le Dr LEWIS H. GOUGH
Secrétaire général. . . » le Dr WALTER INNES BEY
Secrétaire adjoint. . . » ANASTASE ALFIERI
Trésorier-Bibliothécaire » RICHARD WILKINSON

Liste des Membres de la Société en 1918



(Les noms des Membres fondateurs sont précédés de la lettre **F**)



Membres Honoraires

- 1908 MM. ALLUAUD (Charles), 3, rue du Dragon, à
Paris (6^e).
» BEDEL (Louis), 20, rue de l'Odéon, Paris (6^e).
» BUGNION (Prof. Edouard), «La Luciole», Aix
en Provence, France.
» BUYSSON (Henri du), Château du Vernet, par
Broût-Vernet (Allier), France.

- 1908 MM. BUYSSON (Robert du), St Rémy la Varenne,
par St Mathurin (Maine et Loire), France.
- » FAUVEL (Albert), 3, rue Chorou, Caën (Cal-
vados), France.
- 1909 JOANNIS (L'Abbé J. de), 7, rue Coëtlogon,
Paris (6^e).
- 1908 JOUSSEAUME (Dr Félix), 29, rue de Gergovie,
Paris (14^e).
- 1909 MARCHAL (Dr Paul), Directeur de la Station
Entomologique de Paris, 30, rue des Tou-
louses, Fontenay aux Roses (Seine), France.
- 1917 NAVAS (R.P. Longin), Colegio del Salvador,
Zaragoza, Espagne.
- 1908 PIC (Maurice), à Digoin (Saône et Loire),
France.
- 1909 ROTHSCHILD (Lord), Tring Park, Tring Herts,
Angleterre.
- 1908 SIMON (Eugène), 16, Villa Saïd, (70, rue Pér-
golèse), Paris (16^e).

Membres Titulaires

- 1911 MM. ABÁZA Bey (S.E. Abdel Hamid), Boîte Pos-
tale N° 63, au Caire.
- 1913 ABÁZA (Fouad Bey), Boîte Postale N° 63, au
Caire.
- 1908 ADAIR (Ernest W.), Turf Club, au Caire.

- 1909 ALFIERI (Anastase), Poste Restante, Fagala,
au Caire.
- 1916 AMIC (Charles), Compagnie du Canal de
Suez, Kasr-el-Doubara, au Caire.
- 1908 ARTIN Pacha (S.E. Yacoub), Sharia Nubar
Pacha, au Caire.
- 1908 BAHARI (G.C.), Sharia Mikhaïl Gad, Fagala,
au Caire.
- 1916 BAHGHAT (Saïd), Boîte Postale N° 63, au Caire.
- 1911 BERGEVIN (E. de), Rue Elysée Reclus, Alger,
Algérie.
- 1912 CALVI (Alberto), Sharia Boulac, au Caire.
- 1912 CAPRARA (César), Caisse de la Dette Publi-
que, au Caire.
- 1917 CASORIA (Matteo), Sharia Abbas, au Caire.
- 1908 CATTAOUI (Adolphe), Place de l'Opéra, au
Caire.
- F CHAKOUR (Edgard), Compagnie des Eaux du
Caire, Boulac, au Caire.
- 1910 DEBSKI (D^r Bronislaw), villa Wanda, à Hé-
louan, près le Caire.
- 1915 Director Zoological Service, Ghizeh, près le
Caire.
- 1908 DUCROS (Hippolyte), 10, Sharia Wabour-el-
Moïa, au Caire.

- 1917 ERIAN (Boutros Bassili), Société d'Horticulture, Ghizeh, près le Caire.
- 1918 FAKHR EL DIN (Farid), Boîte Postale N° 63, au Caire.
- F FERRANTE (Giovanni), Avocat, 4, Sharia Gohari, au Caire.
- 1908 FORTE (A.), Avocat, Sharia Chérifein, au Caire.
- 1918 FOUAD (Moustapha), Boîte Postale N° 63, au Caire.
- 1909 GANTES (Edouard), Ing. Agronome, Sharia Ibrahimi, Kasr-el-Doubara, au Caire.
- 1914 GARBOUA (Maurice), Sharia Kénissa-el-Guédida, Kasr-el-Nil, au Caire.
- 1907 GAROZZO (A.S.), Ingénieur, Sharia Abbas, au Caire.
- 1908 GATINEAU (D^r L.), Sharia Boulac, au Caire.
- 1917 GIBSON (Gordon W.), Section d'Entomologie, Ministère d'Agriculture, au Caire.
- 1912 GOUGH (D^r Lewis), Directeur de la Section d'Entomologie, Ministère d'Agriculture, au Caire.
- 1914 GRAVES (Captain Philip), Turf Club, au Caire.
- 1908 GREEN (Jacques), Avocat, Sharia Madabegh, au Caire.
- 1908 HESS (D^r Ernest), Kasr-el-Nil, au Caire.

- 1917 HILBAWY (Hassan), Section d'Entomologie,
Ministère d'Agriculture, au Caire.
- 1908 ICONOMOPOULOS (Léonidas D.), Sharia Zaki,
Tewfikieh, au Caire.
- F INNES Bey (Dr Walter), Square Halim, Esbé-
kieh, au Caire.
- 1917 INTERDONATO (Ricardo), Directeur du Banco
di Roma, à Alexandrie.
- 1915 JULLIEN (Joseph), Compagnie du Canal de
Suez, Kasr-el-Doubara, au Caire.
- 1917 LOBO (Bruno), Museu Nacional do Rio de Ja-
neiro, Rio de Janeiro, Brésil.
- 1918 MAHER Pacha (S.E. Moustapha), 30, Sharia
Omar Ebn Abdel Aziz, Mounira, au Caire.
- 1916 MEZRAHI (Salomon), Sharia Sheikh Hamza,
au Caire.
- 1907 MOSSERI (Victor), Ing. Agronome, Conseiller
Technique de la Société Sultaniennne d'Agric-
ulture, 23, Sharia Abou-Sebâa, au Caire.
- 1918 NAFA (Abbas), Boîte Postale N° 63, au Caire.
- 1908 NUBAR PACHA (S.E. Boghos), Sharia Nubar
Pacha, au Caire.
- 1910 PACHUNDAKI (D.), Boîte Postale N° 1138, à
Alexandrie.
- 1918 PETER (Francis), Juge aux Tribunaux Mixtes,
au Caire.

- 1911 PETROFF (Alexandre), Consul de Russie,
Boulevard Ramleh, à Alexandrie.
- 1910 PEYERIMHOFF (P. de), 78, Boulevard Bon
Accueil, Alger, Algérie.
- 1908 PEZZI (E.), Avocat, Sharia Kasr-el-Nil, au
Caire.
- 1908 PIOT Bey (J.B.), Square Halim, Esbékieh,
au Caire.
- 1917 RIFAAT (Mohamed), Section d'Entomologie,
Ministère d'Agriculture, au Caire.
- 1917 SABRI (Abd-el-Aziz), War Office, au Caire.
- 1917 SABRI (Mohamed Lebib), Sultanieh School,
au Caire.
- 1915 SOUSSA (Dr Tewfik), Sharia Soleiman Pacha,
au Caire.
- 1913 STOREY (Gilbert), Maadi, près le Caire.
- 1909 TODD (Dr), Turf Club, au Caire.
- F WILLCOCKS (F.C.), Entomologiste de la So-
ciété Sultanieh d'Agriculture, Boîte Postale
N° 63, au Caire.
- 1917 WILLIAMS (G. Hepworth), Ghezireh House,
Ghézireh, près le Caire.
- 1912 WILKINSON (Richard), Banque Nationale, au
Caire.

- 1918 WLANDI (Charles), Avocat, Boîte Postale N° 380, au Caire.
- 1918 ZULFICAR (Mohamed Bey), Palais d'Abdine, au Caire.
-

Membres Associés

- 1916 ABDEL MALEK (Ragheb), Section d'Entomologie, Ministère d'Agriculture, au Caire.
- 1918 BESHIR (Mahmoud), Section d'Entomologie, Ministère d'Agriculture, au Caire.
- 1916 EL DIB (Moustapha), Section d'Entomologie, Ministère d'Agriculture, au Caire.
- 1917 DOSS (Ragheb Girgis), Section d'Entomologie, Ministère d'Agriculture, au Caire.
- 1916 ISKANDER (Neguib), Section d'Entomologie, Ministère d'Agriculture, au Caire.
- 1916 HELMY (Mahmoud), Section d'Entomologie, Ministère d'Agriculture, au Caire.
- 1916 ZAKI (Mohamed), Section d'Entomologie, Ministère d'Agriculture, au Caire.
-

Abonnés

- The Imperial Entomologist, Agricultural Research Institute, Pusa (Bihar), India.
- The Treasurer, Dept. of Agriculture, Nairobi, British East Africa.
-

Liste des Sociétés qui ont accepté l'échange des publications

Algérie. — Société d'Histoire Naturelle de l'Afrique du Nord, Faculté des Sciences d'Alger, Alger.

Angleterre. — The Imperial Bureau of Entomology, Review of Applied Entomology, 89, Queen's Gate, London S.W.

Novitates Zoologicae, Tring Herts.

Australie. — The Entomologist's Office, Department of Agriculture, Sydney, N.S.W.

Brésil. — Museu Nacional do Rio de Janeiro, Rio do Janeiro.

Canada. — Entomological Society of Ontario, Ontario.

Egypte. — Société d'Histoire Naturelle d'Alexandrie, B.P. 1138, Alexandrie.

Ministère d'Agriculture, Bibliothèque, au Caire.

Espagne. — Junta para ampliacion di Estudios, Moreto 1, Madrid.

Junta de Ciencias Naturals de Barcelona, Barcelone.

"Physis" Publicacio destinada als amics de la naturalesa, Apartado 654, Barcelona.

Real Sociedad Espanola de Historia Natural, 74, Alphonso XII, Madrid.

Etats-Unis. — Buffalo Society of Natural Sciences, Buffalo.

Library of the American Museum of Natural History, Central Park, 77th Street, 8 Avenue, New-York.

New-York Entomological Society, Eastern Parkway, Brooklyn, New-York.

Academy of Natural Sciences, Entomological Section, Lagon Square, Philadelphia.

American Entomological Society, Lagon Square, Philadelphia.

United States Department of Agriculture, Washington, D.C.

United States National Museum, Smithsonian Institution, Washington, D.C.

Smithsonian Institution, Washington, D.C.

Graduate School of Tropical Agriculture and Citrus Experiment Station, Riverside, California, U.S.A.

France. — L'Echange, Digoin (Saône et Loire).

La Feuille des Jeunes Naturalistes, 3, Rue Fresnel, Paris (16^{me}).

La Revue d'Entomologie, 3, Rue Chorou, Caën (Calvados).

La Revue Scientifique du Bourbonnais et du Centre de la France, Moullins (Allier).

Société d'Etudes des Sciences Naturelles, 6, Quai de la Fontaine, Nîmes.

Société Linéenne de Bordeaux, Athénée, 53, Rue des Trois Conils, Bordeaux.

Société des Sciences Naturelles de l'Ouest de la France, Nantes (Loire inférieure).

Société Entomologique de France, Hôtel des Sociétés Savantes, 28, Rue Serpente, Paris.

Société d'Etudes Scientifiques de l'Aube, Carcassonne (Aube).

Italie.— Museo Civico di Storia Naturale, Genova.

Società dei Naturalisti, 48, S. Sebastiano, Napoli.

Accademia Scientifica Veneto Trentino Istriana, Padova (Veneto).

La R. Stazione di Entomologia Agraria, 19, Via Romana, Firenze.

Laboratorio di Zoologia Generale e Agraria. Napoli (Portici).

Mozambique.—Repertorio de Agricultura de Provincia di Mocambique, Lorenzo Marques.

Portugal.— Société Portugaise des Sciences Naturelles, 144, Rue Santa Martha, Lisbonne.

Russie.— Société Entomologique de Russie, Moika 96, Palais Ministère d'Agriculture, Petrograde.

Revue Russe d'Entomologie, Uspenskij N^o.3, Petrograde.

Suède.—K. Svenska Vetenskapsakademien i Stockholm, Stockholm.

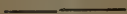
Entomologiska Foreningen, Brottningsgatan 94, Stockholm.

Kgl. Vetensk. och Witterh. Samhalle, Goteborg.

Suisse.— Schweizerische Entomologische Gesellschaft,
Bern.

Naturforschende Gesellschaft, Zurich.

Internationaler Entomologenverein, (Societas entomologica, M. Ruhl), Zurich.



N.B. — Pour changement d'adresse, erreur ou omission,
s'adresser à M. le Secrétaire Général, Boîte Postale
N° 430, au Caire.

Séance du 16 Janvier 1918

Présidence de M. le Dr LEWIS H. GOUGH

Communications

Espèces, sous-espèces et variétés

par MAURICE PIC

C'est avec un vif intérêt que j'ai pris connaissance du récent article de M^{re} G. Ferrante paru dans le Bulletin (1) sous le titre « Espèces et Variétés ».

Je crois devoir apporter sur le même sujet quelques renseignements supplémentaires, sous un titre copiant, avec amplification du terme sous-espèce, celui de mon estimable collègue. Le présent article est écrit surtout au point de vue entomologique.

Dans sa dissertation, M^{re} G. Ferrante ne parle pas du

(1) Bulletin Soc. Entom. Egypte, 1917, pp. 15 à 20.

terme sous-espèce qui, depuis quelques années (plus anciennement les auteurs ne voyaient que des espèces ou des variétés) a joué un certain rôle dans la nomenclature. Ainsi que l'espèce et la variété, la sous-espèce est difficile à définir; c'est un échelon intermédiaire entre les deux termes anciens, si l'on veut, une espèce en *évolution* qui tend à se spécifier et qui ne le fait que par bonds, sous divers aspects plus ou moins nets ou tranchés de la forme primitive. Ainsi la sous-espèce peut être définie: un passage fixe de formes voisines évolutives. La sous-espèce pour les uns n'est que la race d'autres auteurs; elle m'apparaît, d'autre part, comme étant la *variété nomable* de G. Ferrante (l.c. p. 26), représentée, suivant cet entomologiste, par des caractères et formes extérieures qui peuvent autoriser la formation d'un groupement d'invidus. Comme *races*, certains auteurs entendent des modifications spécifiques localisées: ce sont ainsi des variétés géographiques. Au terme bien connu, si non mal défini, de variété, divers auteurs, de l'école allemande surtout, ont substitué le terme *aberration*, simple synonyme.

On a parlé également beaucoup, ces dernières années, de la sous-variété, celle-ci se rapportant, non à des changements de faciès, mais à des modifications de dessins, ou à des changements de couleur.

Je ne crois pas inutile de rappeler, à titre documentaire, qu'en 1891 (1), presque à mes débuts d'entomolo-

(1) Depuis, j'ai publié (en partie dans le journal L'Echange) un certain nombre d'articles sur des sujets analogues, entre autres plusieurs sur l'importance de la variété dans la nomenclature entomologique.

giste publiciste, j'ai tenté de limiter le *fas* et *nefas* en matière variétiste, dans l'avant-propos de mon ouvrage spécialisé « matériaux pour servir à l'étude des Longicornes ».

Pour restreindre la dénomination indéfinie des modifications spécifiques, j'ai, à ce moment, classé ces modifications en deux catégories particulièrement définies. Voici la copie de quelques unes des lignes écrites alors sur ce sujet :

« Je distinguerai deux formes dans la variabilité de l'être : la variété et la variation : la variété (comprenant les variétés proprement dites et les sous-variétés) que je définis ainsi : « une modification franche ou une suite de modifications graduées, mais accidentelles, des organes ou de la forme typique se reproduisant sous la même influence extérieure », tandis que la variation serait seulement « la simple modification vague et élastique, essentiellement instable d'un changement. »

Et plus loin, je définis ainsi les sous-variétés : « La suite des modifications sensibles de la forme typique à une autre extrême. »

Il me semble que mes écrits de 1891 ne sont pas *démodés* aujourd'hui et qu'il est utile de ne pas les ignorer. On y trouve la réponse raisonnée (et valable toujours) aux critiques des naturalistes qui prétendent qu'il n'existe pas deux individus absolument semblables dans la nature, ou qui insinuent que les espèces varient insensiblement d'un extrême à l'autre, sans états intermédiaires distinguables. A titre documentaire, je vais signaler, en terminant, parmi les nombreux articles que

j'ai pu écrire, ceux qui traitent du présent sujet, ou qui s'en rapprochent en partie :

Variétés (1^{er} article), Imprimé à part, Lyon, 1890

Variétés (2^{me} article), — id — , Lyon, 1897

Qu'appelle-t-on décrire trop ?

Imprimé à part, Paris, 1898

Avant-Propos de *Mat. Longicornes* II.

Imprimé à part, Lyon, 1898

Quelques réflexions à propos des noms donnés aux variétés. *Miscellanea Ent.* VII 1899

N'encombrons pas la nomenclature

L'Echange, 1909

Doit-on nommer ou non les variétés.

L'Echange, 1913

De la logique

L'Echange, 1913

Habitats et notes

concernant divers Coléoptères égyptiens

par MAURICE PIC

Glycia ornata Klug. J'ai capturé cette jolie espèce à Siala.

Tetragonoderus obscuricollis Dej. Sur les sables des bords du Nil, à Assouan-(Pic).

Mastax Parreysi Chaud. Avec le précédent.

Bledius Husseini Quedf. Avec le précédent.

Achenium debile Er. var. Louxor (Pic).

Paussus saharæ Bedel. Je possède un exemplaire égyptien de cette espèce provenant des récoltes faites par feu Letourneux à Alexandrie. L'insecte en question a été signalé par Leprieur (L'Abeille XXI, Paussidæ, p. 3., note), sous le nom de *P. armatus* Westw.

Cette espèce a porté les noms erronés de *æthiops* Westw., *cornutus* Chev.; elle fut décrite par Fairmaire, en 1879, sous le nom de *cornutus*, avant d'être mutée par Bedel (Bull. Soc. Fr., 1900, p. 278) sous le nom de *saharæ*.

Euconnus ægyptiacus Pic. En tamisant des détritits de plantes à Louxor (Pic).

Heterocerus niloticus Grv. Hérouan-les-Bains (Pic).

Anisoplia sabulicola Er. Sur les graminées, pas rare à Fayoum et Hérouan (Pic).

Millingenia Marmottani Frm. Hérouan-les-Bains et Assouan, au pied des plantes dans les lieux sablonneux (Pic).

Aphodius (Mendidius) rutilinus Reitter. Région des Pyramides (Pic).

Pachnoda Savignyi Gory. Capturé crevé sur les sables à Fayoum et Louxor, en Mars (Pic).

Agrilus Kiesenwelteri Trn. Ile Eléphantine près Assouan, probablement sur *Mimosa* (Pic).

Cryptopnus hieroglyphicus Pic. Bords du Nil, à Assouan (Pic).

Troglops ægyptiacus Ab. Fayoum (Pic).

Colotes cinctus Mots. Sur *Tamarix*, à Fayoum (Pic).

Microjulistus Wegeneri Pic. Sur les fleurs, à Sennouhès près Fayoum (Pic).

Sinoxylon bicuspidatum Ancy. Sur une branche sèche d'*Acacia*, à Assouan (Pic).

Lyctus cornifrons Lesne. Assouan, branches sèches (Pic).

Platyedema cæsifrons Mars. Siala près Fayoum (Pic).

Ananconia heluanensis Pic. Héliouan (Pic). Un exemplaire crevé. A été décrit comme *Ananca* Frm-Germ.

Lixus anguiculus Boh. Assouan (Pic).

Lixus ascanii L. Fayoum (Pic).

Nanophyes maculatus Trn. Fayoum, sur *Tamarix* (Pic).

Nanophyes ægyptiacus Pic.

Ægyptobaris arctithorax Pic. Assouan (Pic).

Agapanthia annularis Ol. Fayoum. C'est, autant qu'il me souvienne, la seule espèce de Longicornes que j'ai capturée en Egypte, pays d'ailleurs peu riche en espèces de cette famille.

Chlamis ægyptiacus Desbr. Environs du Caire (Hénon, in coll. Pic). C'est à Desbrochers que l'on doit attribuer la paternité descriptive de cette espèce, et non à Achard qui ne l'a fait connaître qu'en 1913, alors que le premier auteur l'a publiée dès 1898, ainsi que je l'ai déjà fait connaître d'autre part (Bull. Soc. Ent. Fr. 1913 p. 256).

Cryptocephalus punctatissimus Suf. Le Caire (Hénon). Pas très rare sur le *Tamarix*, à Fayoum (Pic).

Cryptocephalus brunneicollis var. *ægyptiacus* Pic. Louxor (Pic).

Cryptocephalus brunneicollis var. *luxorensis* Pic. Louxor (Pic).

Malegia Letourneuxi Lef. Assouan, sur *Acacia* (Pic).

Séance du 6 Février 1918

Présidence de M. le D^r LEWIS GOUGH

Nominations :

Sur la proposition de M. le D^r WALTER INNES BEY et de M. RICHARD WILKINSON, S.E. MOUSTAPHA PACHA MAHER, MOHAMED BEY ZULFICAR et Monsieur FRANCIS PETER sont nommés membres titulaires.

Communications

Notes Entomologiques

par M^{re} GIOVANNI FERRANTE

Un nouvel ordre d'insectes

En 1911 le Prof. F. Silvestri recevait du Ceylan deux exemplaires d'un petit Arthropode, qui lui parurent très intéressants.

D'autres individus, provenant de l'Afrique Occidentale (Côte d'Or) et de l'île de Java, vinrent aussi augmenter sa collection. En les examinant il put consta-

ter qu'il se trouvait en présence d'un genre nouveau représentant un nouvel ordre d'insectes que l'éminent professeur désigna sous le nom de *Zoroptera*.

Nous transcrivons ci-après les principaux caractères de ce nouvel ordre, que nous extrayons de la diagnose que le Prof. Silvestri donne dans le « Bollettino del Laboratorio di Zoologia generale e Agraria. Vol. VII, publié le 3 Décembre 1913 :

« *Insecta terrestria, parva, aptera, agilia, praedantia.*

Corpus elongatum sat depressum....., abdomine segmentis decem..... antennae breves, moniliformes, novem articulatae.....

Prothorax quam mesathorax aliquantum major..... pedibus similibus, cursoriis, tarso biarticulato..... »

L'Ordre des *Zoroptera* comprend jusqu'à présent seulement le genre *Zorotypus*, créé par le Prof. Silvestri, avec 3 espèces, dont voici un petit tableau dichotomique :

- a) Troisième article des antennes plus court que le deuxième. *Z. guineensis* Silv.
- b) Troisième article des antennes plus long que le deuxième.
 - c) Troisième article des antennes n'atteignant pas le double de la longueur du deuxième. *Z. ceylonicus* Silv.
 - d) Troisième article des antennes deux fois plus long que le deuxième. *Z. javanicus* Silv.

Ces petits Arthropodes, dont la longueur maxima atteint à peine 2 1/2 mm., vivent dans les détritux végétaux, dans le bois en décomposition et dans les crevasses du sol à une profondeur de 2 à 20 c.m.

Ils sont très agiles et se nourrissent de petits Ar-

thropodes, notamment d'Acariens, dont les débris ont été retrouvés dans leurs intestins par le Prof. Silvestri.

Il serait bien intéressant de rechercher si ce nouvel ordre a des représentants dans notre faune égyptienne, vivant dans les mêmes conditions d'habitat que ceux de Ceylan, de l'Afrique Occidentale et de l'Île de Java.

Séance du 6 Mars 1918

Présidence de M^{re} GIOVANNI FERRANTE

Communications

Névroptères d'Égypte

par le R.P. LONGIN NAVAS, S. J.

Dans l'espoir d'être utile aux membres de la Société Entomologique d'Égypte et de stimuler ainsi la recherche et l'étude de ces insectes très peu connus encore dans cette contrée-là, je commence l'étude taxonomique de ceux dont la notice me sera arrivée, soit par les pu-

blications déjà parues, soit par les envois directs des spécimens.

Caractères généraux des Névroptères

Je prend ici le mot *Névroptères* dans la signification la plus restreinte telle qu'on l'admet aujourd'hui, limitée aux Planipennes. Par conséquent j'exclus de mon étude, pour le moment, les Paraneuroptera (Odonates, Libellules), Ephemeroptera (Ephémères), Plecoptera (Perles), Megaloptera, Rhaphidioptera, Mecoptera, Psocoptera et Trichoptera.

Ainsi limités, les Névroptères peuvent être caractérisés comme il suit :

Insectes à appareil buccal conformé pour la mastication, composé des pièces ordinaires, mandibules, maxilles, palpes, etc ; yeux et souvent ocelli ; prothorax mobile ; abdomen généralement de 10 segments, appendices génitaux diversiformes ; pattes en général cylindriques, semblables entre elles ; tarses de 5 articles ; ailes grandes, en général testiformes pendant le repos, à réticulation plus ou moins serrée.

Lavres terrestres, carnivores. Métamorphoses compliquées ou complètes.

Division des Névroptères en familles

1. Antennes terminées en massue (fig. 1, 2) ; ailes avec les veines souscostale et radiale confluentes avant le bout (fig. 4) ; larves larges, applaties, armées de mandibules énormes propres à sucer. 2

— Antennes diversiformes, jamais terminées en massue, mais en pointe (fig. 3) ; larves plus ou moins allongées. 3

2. Antennes d'ordinaire très longues (fig. 2); prothorax très court et très large; ailes larges, de forme plus ou moins triangulaire, surtout les postérieures

1. **Ascalaphides**

— Antennes beaucoup plus courtes que les ailes (fig. 1.); prothorax à peu près aussi long que large, souvent allongé; ailes relativement étroites et longues, de forme plus ou moins lanceolée

2. **Myrméléonides**

3. Toutes les pattes semblables, les antérieures pas ravisseuses. 4

— Pattes différentes, les antérieures (fig. 6) ravisseuses, disposées pour retenir la proie, avec la hanche longue, le fémur ou cuisse forte, enflée, garnie d'épines au bord inférieur; tibia ou jambe qui se plie sur la cuisse; les autres pattes normales; prothorax plus ou moins allongé, dilaté en avant et divisé ainsi en deux parties, prozone et métazone; ailes à réticulation assez lâche.

9. **Mantispides**

4. Tête plus ou moins allongée en avant en bec ou prosostome; ailes (fig. 4) très différente l'antérieure de la postérieure tant en forme qu'en grandeur, l'antérieure de forme ordinaire, avec la réticulation normale, la postérieure allongée en forme de ruban ou de fil, parfois très longue, avec un petit nombre de veines; les veines sous-costale et radiale confluentes avant le bout chez les deux ailes.

3. **Névroptérides**

— Bouche normale; tête non allongée en bec en avant; ailes semblables entre elles, la postérieure un peu plus étroite et plus courte. 5

5. Ailes de structure ordinaire, dépourvues de tâches ocelliformes appelées poupilles. 6

— Ailes pourvues de poupilles ou de tâches rondes,

petites, ocelliformes, deux à l'aile antérieure derrière le radius, une à la postérieure ; yeux non métalliques pendant la vie ; cerques des mâles valviformes. 8

6. Antennes filiformes, à articles plus longs que larges ; yeux à reflets métalliques pendant la vie ; couleurs du corps claires, verte, jaunâtre, rougeâtre, etc. ; ailes toujours ornées de veinules en gradins ; insectes moyens ou petits.

4. **Chrysopides**

— Antennes moniliformes, c'est-à-dire à articles à peu près aussi longs que larges ou plus larges que longs ; yeux pas métalliques pendant la vie ; insectes petits ou très petits.

7. Couleur générale du corps brune ou plus claire ; articles des tarsi tous cylindriques ; ailes pileuses, à veinules en gradins manifestes ; insectes petits.

5. **Hémérobides**

— Tout le corps et les ailes couvertes d'une poussière blanche, ou de concrétions squamiformes blanches ; quatrième article des tarsi bilobé (fig. 5) ; ailes grandes, avec peu de veinules, sans veinules en gradins distincts ; insectes très petits.

6. **Conioptérygides**

8. Antennes moniliformes, semblables chez les deux sexes ; vertex et prothorax sans verrues ; femelles sans oviscapte allongé.

7. **Osmylides**

— Antennes pectinées chez le mâle (fig. 3), filiformes et dentées chez la femelle ; vertex et prothorax ornés de grosses verrues ; femelle avec un oviscapte long, filiforme.

8. **Dilarides**



Explication des figures

1. Antenne de Myrméléonide.
2. » d'Ascalaphide.
3. » de Dilaride, mâle.
4. Ailes (schématiques) de Némoptéride.
5. Tarse de Conioptérygide.
6. Patte antérieure de Mantispide.

Notes Entomologiques

par M^{tre} GIOVANNI FERRANTE

Le *Zabrus ventricosus* Zim. est sans nul doute une des espèces les plus rares de nos Carabides égyptiens.

Trouvé par Zimmerman en Egypte en 1831, le *Zabrus ventricosus* Zim., est le seul représentant dans notre pays de la Tribu des *Zabrini*.

On ne connaît de cet insecte que la femelle, le mâle jusqu'à présent nous reste inconnu.

Il y a donc, une découverte très intéressante à faire.

Cet insecte est nocturne : il vit sous les pierres épar-
sées dans les plaines sablonneuses.

Le seul individu de ma collection est une femelle que j'ai capturée aux environs de Hammam (Dakahlieh) sous une pierre au commencement du mois d'Avril 1908.

■
* *

Une étude très utile, dans l'intérêt de la biologie de nos insectes, consisterait dans le rapprochement des espèces dont les caractères morphologiques subissent des variations plus ou moins caractéristiques.

En nous réservant de nous occuper plus tard de cette question d'une manière toute spéciale, nous nous bornerons ici à mentionner les quelques insectes sui-

vants dont les variations individuelles sont très dignes de remarque :

L'*Hydroporus Cerisyi* Aubé dont les stries et les taches suturales des élytres présentent toutes les nuances possibles jusqu'à disparaître sur certains individus presque complètement.

Fait digne de remarque, dans certains individus les stries sont très accentués tandis que la tâche suturale n'existe pas.

Dans d'autres individus au contraire, la tache est très nette, tandis que les stries disparaissent presque entièrement.

Le *Spheredium bipustulatum* F. et sa variété *bimaculatum* Woolt présentent des différences caractéristiques, dont les passages de l'un à l'autre sont presque insaisissables.

Mais où les variations individuelles atteignent le plus haut degré c'est dans le *Cercyon quisquilius*.

Type : Tête noire ; thorax jaunâtre ; élytres clairs.

Variation : Thorax noir ; élytres moins clairs avec taches noirâtres.

Variation : Thorax noir ; élytres presque noirs.

Variation : Thorax noir avec le côté clair.

Ces quelques indications suffisent pour donner une idée des caractères très variables de cet Hydrophilide dont les mœurs sont très intéressants à étudier.

Nous nous occuperons de cela dans une prochaine communication.

Séance du 10 Avril 1918

Présidence de M^{re} GIOVANNI FERRANTE

Nominations :

Sur la proposition de M^{re} GIOVANNI FERRANTE et de M. ANASTASE ALFIERI, MM. CHARLES WLANDI et ABBAS NAFIA sont nommés membres titulaires.

Communication

Liste des Cécidies d'Egypte

par M. le D^r BRONISLAW DĘBSKI

Il a été décidé de publier ce travail dans les Mémoires de la Société.

Voir Note Bull. Soc. Ent. Egypte 1917, fasc. 4, p. 129.

Séance du 15 Mai 1918

Présidence de M. le D^r BRONISLAW DĘBSKI

Communications

**Note on *Euproctis susanna* STGR.,
a Lymantriid new for Egypt, with a description
of the previously unknown larva**

by G. STOREY, B.A., F.E.S.

On the 23rd of March of last year Mr. Hepworth Williams took in the Wadi Rashid a single male specimen of a Lymantriid new for Egypt. This proved to be *Euproctis susanna* Stgr., which has previously been taken in Arabia and Palestine. A very closely related species, *E. charmantinti* Vuill., although not mentioned in Andres' list of the Lepidoptera of Egypt, has been recorded from Egypt by Seitz from a single specimen. It differs from the present species in having no mark-

ings on the forewing, and is an inhabitant of Southern Algeria.

This year Mr. Adair during a trip to the desert near Helouan at the end of March, was fortunate enough to find four Lymantriid larvae feeding on an *Ochradenus* bush, in the Wadi Hussein. Three of these have since been reared and have proved to be *E. susanna*. As the early stages of this species do not appear to have been described the following brief descriptions may be of interest.

Larva - Head orange yellow ; ground colour above black, below yellow irrorated with black at the sides and on segments four to seven spotted with orange in the centre ; on each side at the level of the spiracles is an orange red line ; each abdominal segment bears four pairs of tubercles, of which the first or central pair are the largest, brown in colour, fringed all round with short golden brown hairs and bordered on the inside with longer whitish hairs, the second pair are also brown and carry large tufts of long white hairs, the third pair are situated in the spiracular lines, are orange in colour and carry a few white hairs, and the fourth pair are the smallest of all, situated below the spiracular lines and orange in colour with a few white hairs. the thoracic segments are more or less completely covered with similar whitish hairs ; the legs are dark brown above and below, yellowish brown on the sides.

Length when full grown : about 2 cm.

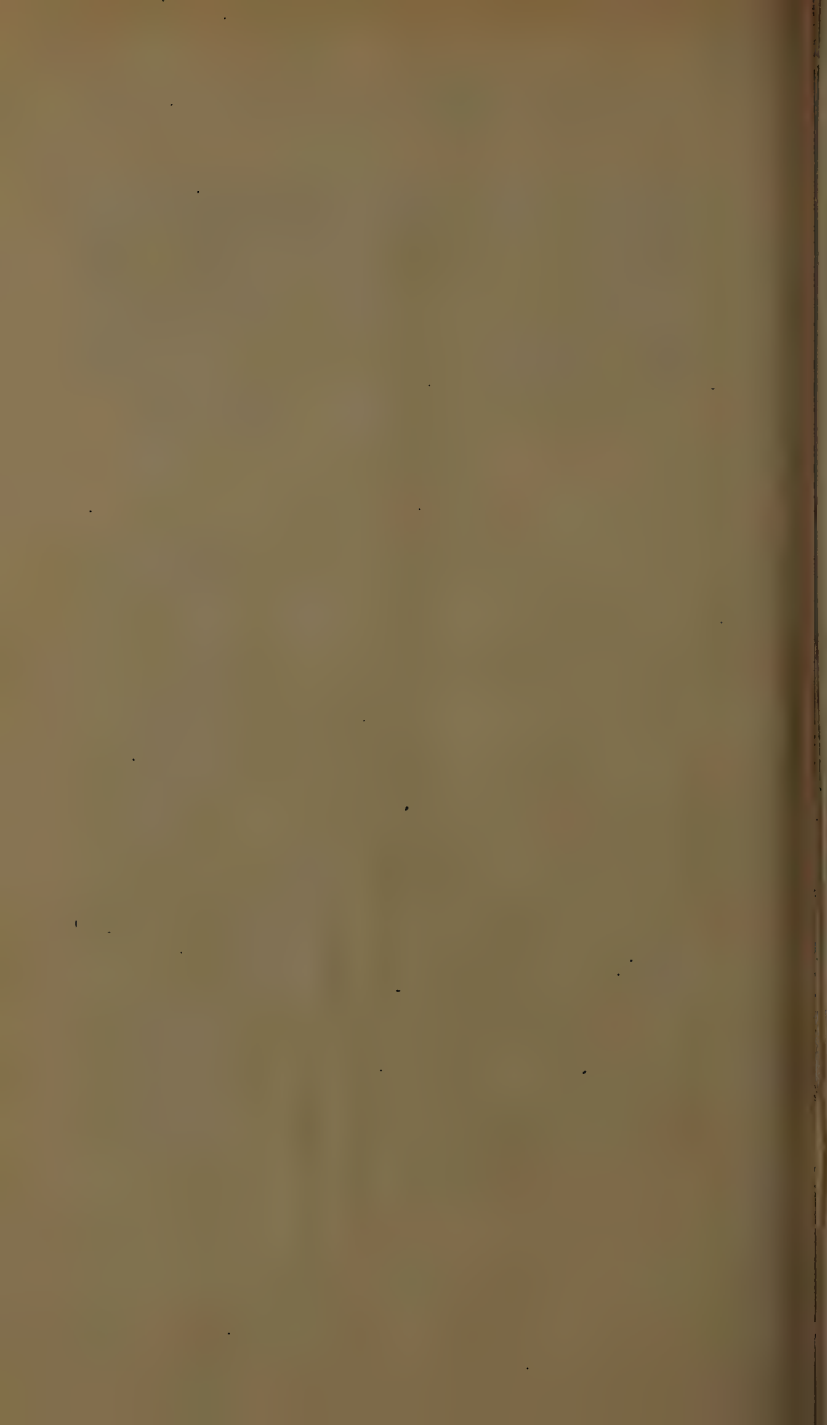
Food-plant: *Ochradenus baccatus*, Delile.

Pupa - Light chestnut brown in colour with a very slight covering of whitish down on the dorsum and a sharp point on the anal segment. Enclosed in a loose silken cocoon attached to the foodplant. Length : 17 mm.

Collembola or Springtails injuring Cotton

Mr. F. C. Willcocks exhibited a series of young cotton plants from Gizeh illustrating the work of the insects commonly known as "springtails" or "ground fleas" (order Aptera, sub-order Collembola). The foliage of these plants was small crinkled or malformed (in some cases to a very marked degree) and here and there pieces of the leaf tissue had been destroyed leaving holes irregular in outline and typical of the injury produced by springtails on many different kinds of plants. Hitherto, it appears that the injury caused to cotton by these insects has been wrongly ascribed to such causes as unfavourable weather conditions and bad cultivation. The soil in the cotton field from which the above plants were collected was swarming with dusty colored springtails; the tilth of the field, which lies rather low, was poor and this together with a moist condition of the soil no doubt favoured the multiplication of the pest. The plants in the areas where the springtails were most numerous had a striking appearance: generally speaking they were etiolated or «weedy» looking, with few and malformed leaves, and in many instances

lateral branching was precocious and abnormal. So far as known this is the first time that Collembola have been recorded as causing injury to a fieldcrop in Egypt, but Mr. Willcocks stated that he had recognised them as troublesome pests to seedling flowering plants such as cinerarias, antirrhinums, etc., for some years past. The injurious genera and species have no yet been worked out in this country.



Séance du 12 Juin 1918

Présidence de M. F. C. WILLCOCKS

Nominations :

1° Sur la proposition de M. SAÏD BAHGHAT et de M. ANASTASE ALFIERI, Messieurs MOUSTAPHA FOUAD et FARID FAKHR EL DIN sont nommés membres titulaires.

2° Sur la proposition de M. le Dr LEWIS GOUGH et de M. ERNEST ADAIR, Monsieur MAHMOUD BESHIR est nommé membre associé.

Communications

Exposé synoptique des espèces égyptiennes
du genre *Sphingonotus* et des petits genres voisins.

par le Dr W. INNES BEY

Je crois qu'il est superflu de faire ressortir ici l'importance de ce genre d'Ædipodiens en Egypte. Nos orthoptérologistes savent bien que les *Sphingonotus* et trois petits genres très voisins, les *Heteropternis*, *Leptoscirtus* et *Leptopternis*, forment à eux seuls la presque totalité des Ædipodiens désertiques.

Le Dr FRANZ WERNER (1) signale huit espèces de *Sphingonotus* égyptiens qu'il a capturées ou bien relevées dans les travaux des auteurs qui se sont occupés de notre faune. En 1912 M. JAMES A. G. REHN, de Philadelphie, a décrit dans le Bulletin de notre Société (2) une nouvelle espèce qu'il a découverte parmi une petite collection d'orthoptères égyptiens qu'il avait reçue de M. E. CHAKOUR (3). Je crois aussi pouvoir démontrer ici, après la révision qu'il m'a été donné de faire de ce genre et après une rectification spécifique, que l'on peut encore ajouter une nouvelle espèce et porter à neuf le nombre des espèces égyptiennes du genre *Sphingonotus* proprement dit.

Avant de proposer cette rectification je crois nécessaire de rappeler ce que dit DE SAUSSURE (3), au sujet du genre qui nous occupe :

Les espèces du genre *Sphingonotus* (FIEB.) s'échelonnent entre des limites si peu marquées qu'on ne sait jamais où s'arrête la variété, où commence l'espèce. Les caractères ont chez la plupart d'entre elles peu de fixité; les formes et la sculpture du corps, la réticulation et la

(1) FRANZ WERNER— *Die Orthopterenfauna Aegyptens, mit besonderer Berücksichtigung der Fremiaphilen*—Ergebnisse einer zoologischen Forschungsreise nach Aegypten und dem ägyptischen Sudan, Sitzungs. d. K. A. der Wissens. In Wien Mathem. Naturw., Bd. CXIV., Abt., 1 mai 1905.

(2) JAMES A. G. REHN— *Records of Egyptian Orthoptera, with the description of one new species*—Bull. Soc. Ent. Egypte, Juin 1912.

(3) M. REHN mentionne aussi *Sp. Lameerei* FINOT que le docteur WERNER avait mentionné comme *Sp. octofasciatus* (SERV.).

livrée des élytres, varient beaucoup d'un individu à l'autre. Le caractère le plus commode à consulter pour la détermination des espèces semble encore se trouver dans la livrée des ailes et dans leur forme, mais je ne saurais dire si les couleurs ne subissent pas des changements suivant les climats et s'il n'existe pas, quant à la forme des ailes, des cas de dimorphisme. Quoiqu'il en soit on ne peut, dans l'état actuel de nos connaissances, faire autrement que d'accepter comme espèces les diverses variantes de chaque type, bien que plusieurs d'entre elles ne représentent probablement que des races locales. Le genre *Sphingonotus* semble présenter un exemple frappant de la manière dont un ou plusieurs types spécifiques, en se dispersant à la surface du globe, subissent en rayonnant des modifications correspondantes, et se divise en races qu'on serait tenté de considérer comme des espèces en voie de formation ».

Tout en reconnaissant la justesse des remarques de DE SAUSSURE et que nous considérions nos *Sphingonotus* comme des races locales, des variétés ou de bonnes espèces, il n'est pas moins nécessaire, pour la description de notre faune, de les classer et de nous servir des caractères différentiels qui paraissent être les plus constants pour arriver à leur détermination.

C'est ce que je vais essayer de faire dans cette petite note après avoir présenté quelques observations sur la validité de *Sphingonotus balteatus* (SERV.), que SERVILLE a décrit sous le nom d'*Edipoda balteata* d'après un spécimen provenant de Bombay et qui se trouvait dans les collections du Museum d'Histoire Naturelle de Paris et que DE SAUSSURE a cru pouvoir

identifier à l'orthoptère figuré par SAVIGNY dans la *Description de l'Égypte*, pl. 7, fig. 9 — KRAUSS rapporte également cette figure à *Sphingonotus balteatus* (SERV.), mais il est utile de faire remarquer que WERNER, dans son catalogue, mentionne seulement l'espèce et ne l'a pas retrouvée. Il n'a donc pu constater les caractères sur des individus capturés.

SERVILLE donne la description ci-après pour caractériser l'*Edipoda balteata* (Edipode à écharpe) (1) :

«(Long. 14 log.). D'un roussâtre clair; tête plus pâle, sauf en dessus. Elytres plus longues que le corps, roussâtres et opaques à la base, incolores et transparentes ensuite. Ailes amples, à peu près de la longueur des élytres, incolores, transparentes; disque interne avec un très léger reflet bleuâtre; elles offrent au milieu une bande noire luisante, arquée, d'une largeur remarquable, un peu plus étroite vers ses deux extrémités, interrompue avant d'atteindre le bord antérieur; ce qui produit à cet endroit une tâche carrée étroitement séparée du reste de la bande; celle-ci ayant quatre lignes de largeur. Bord postérieur de l'aile incolore. Antennes et pattes de la couleur du corps; face interne des cuisses postérieures, presque entièrement noire; les dernières jambes avec une teinte bleuâtre à l'extrémité, en dessus; leurs épines noires au bout — Femelle.

De Bombay —Collection du Muséum d'Histoire Naturelle».

Dans le *Prodromus edipodiorum* (2), DE SAUSSURE

(1) AUDINET SERVILLE — *Histoire Naturelle des Insectes Orthoptères*, Paris 1839, p. 734.

(2) Page 203.

donne la diagnose suivante du *Sp. balteatus* (SERV.) sans dire toutefois quelle est la provenance des sujets qu'il décrit :

« Griseus vel rufescens, subtus *lacteus*, statura majore. Pronotum punctulatum vel tenuissime granulatum, postice rectangulum, lobis lateralibus infere angulatis. Elytra obsolete *trifasciata*, dimidio basali densissime irregulariter reticulata, dehinc minus dense et minus irregulariter reticulata, tertia parte apicali vitrea, quadratoreticulata, submaculosa. Alae vitreae, disco basali *subcoerulescente*, fascia media latissima nigra, marginem posticum *sat late liberante*, in medio latior, antice valde angustior, postice tessellata. Femora postica intus nigra, apice annulo pallido. Tibiae postice coerulae. Long. fem. 24; mas. 18; Elytr. fem. 25 mill.; mas. 19 mill. *Variat*; fascia alarum in vena dividente interrupta.— *Oriens*: Syria, Ægyptus — India (Serville) — Africa Terra Herrerae».

Cette diagnose diffère déjà de la description de SERVILLE et ne répond pas aux caractères de nos sujets égyptiens. Dans son *Additamenta ad Prodromum CEdipodiorum*, page 86, SAUSSURE ajoute un point d'exclamation à *Sp. balteatus* ! (SERV.) et donne une autre diagnose plus longue et plus complète (1) :

«Validus, crassiusculus, ochraceus vel fulvescens, punctulatus. — Verticis scutellum vix declive, fem. quam longum aequè latum, antè angulatim inci-

(1) SAUSSURE *Additamenta ad Prodromum CEdipodiorum*, p. 86 (19).

sum, plus minus carinatum. Costa fascialis latiuscula. Tempora majuscula, elongata, punctata. — Pronotum posterius latiusculum. Prozona haud carinata, tantum margine antico-granuloso, metazona confertim punctulata, subtilissime rugulosa, angulo hebetato, canthis lateralibus antrorsum prominulis, rotundatis. Lobi laterales angulo postico rotundato vel oblique subtruncato. — Elytra sat dense reticulata (fasciata), margine anteriore subsinuato; vena intercalata rite explicata in S flexuosa, ante apicem venae mediae subcontigua; area intercalata postica areae ulnari subaequilata; stigmate fem. ultra elytrum medium (vel in medio) sito. — Alae sat trigonales, margine externopostico subsinuato; disco basali in parte anteriore (etsi in margine postico) violaceo, fascia latissima nigra, anterieus angustata (in vena dividente nonnunquam interrupta), postice adhuc lata, rotundata, marginem liberante. — Femora post. intus nigra, marginibus fasciaque praeapicali pallidis — Fem. long. 34; El. 39 mill. — (Bombay; typus *Servillei* in Mus. Paris).

Var. a. — Alarum discus basalis postice et intus roseo amarantinus (*Ægyptus*). — b. — Alarum fascia nigra marginem posticum includens (*Armenia*). — c. — Costa facialis in fronte angustior, subcarinata (ut in *Sp. persa*), infra ocellum constricta (*Aden*; coll. Brunn., N° 11612). ORIENS: Syria, Armenia, *Ægyptus*, India orientalis».

Obs. - Chez cette espèce, ajoute DESAUSSURE, la bande noire des ailes a la même forme que chez *Sh. Brunneri*. — SAVIGNY a fort bien figuré le *Sh. balteatus* à sa grandeur naturelle, sauf peut-être que le metazonite du pronotum pourrait être un peu plus large.

Il me faut encore rapporter la description que A. FINOT fait de *Sp. balteatus* dans ses Orthoptères d'Algérie et de Tunisie (1):

« Long. du corps : mâle, 19 mill. ; femelle, 34 mill.
—Long. du pronotum mâle, 4 mill. — Long. des élytres : mâle, 21 mill. ; femelle, 39 mill.

Roussâtre clair, ponctué de noir. Sommet du vertex peu déclive, surtout chez les femelles, aussi long que large, plus ou moins caréné longitudinalement en son milieu, anguleusement incisé à l'apex. Fovéoles temporales bien marquées, allongées. Front perpendiculaire. Côte frontale assez large, bien carénée latéralement. Pronotum bien rétréci en avant ; prozone non carénée, sauf un petit tubercule saillant près du bord antérieur ; bord antérieur très rugueux, métazone finement ponctuée, légèrement rugueuse très faiblement carénée longitudinalement en son milieu ; angle du bord postérieur droit ; lobes réfléchis plus hauts que larges, à bord inférieur subdroit, à angle postérieur un peu tronqué obliquement. Elytres à réticulation assez serrée ; bord antérieur subsinueux ; nervure intercalée *sinuée en S*, presque contiguë dans le tiers apical avec la nervure radiale postérieure ; champ intercalé postérieur aussi large que le champ interulnaire. Ailes à *peine plus courtes que les élytres*, sub-triangulaires, à bord postérieur du champ radié subsinueux, hyalines ; partie basilaire à *peine teintée de bleuâtre* ; bande arquée noire, très large, rétrécie antérieurement et postérieurement, *parfois* un peu interrompue par la nervure divisante, séparée du

(1) Ann. Soc. Ent. Fr., 1895, Juillet — *Faune de l'Algérie et de la Tunisie*, pp. 475-76.

bord postérieur par un liséré hyalin, dans sa partie postérieure la teinte est moins foncée au centre des aréoles : partie apicale de l'aile hyaline, avec quelques nervules faiblement avoisinées de noir. Genou des fémurs postérieurs concolore avec quelques points noirs. Plaque sous-génitale du mâle avec deux impressions basilaires s'étendant sur le dernier segment ventral de l'abdomen.

Habitat: Inde, Syrie, Egypte, Afrique, Arménie, Tunisie ; (Bonnet et Finot) Djerba, 6».

On voit par tout ce qui précède combien la description de l'auteur de *Sp. balteatus* a été modifiée par DE SAUSSURE et FINOT et il est difficile que les sujets décrits par ces auteurs se rapportent au spécimen décrit par SERVILLE et qui provenait de Bombay. Il me paraît préférable d'abandonner par conséquent le nom spécifique de *balteatus* et d'adopter un autre pour nos spécimens égyptiens. Quant à considérer notre *Sphingonotus* à ailes d'un beau bleu comme une variété de celui qui offre des ailes teintées de violet tirant sur l'amaranthe, ses caractères sont trop différents pour nous permettre d'adopter les conclusions de DE SAUSSURE.

En effet notre espèce à ailes d'un beau violet ne présente jamais la seconde bande noire subterminale des ailes et la plupart des aréoles du champ radié postérieur sont formées d'une seule cellule rectangulaire. Tandis que dans l'espèce à ailes d'un bleu intense il n'existe aucune bande noire subterminale et les aréoles du champ radié postérieur sont formées de trois cellules.

Je propose donc le nom de *Sp. bifasciatus* pour l'es-

pèce à ailes teintées de violet rose et celui de *Sp. quadrifasciatus* pour notre espèce à ailes teintées d'un bleu intense, qu'il est impossible de confondre avec *Sp. coerulans* (L.) et *Sp. azurescens* (RAMB.).

Tableau synoptique des genres

Antennes filiformes ne dépassant pas la longueur de la tête et du thorax réunis. Tarses composés de trois articles; cuisses postérieures renflées et propres au saut; abdomen des femelles ne présentant pas de tarière visible. Tarses munies d'une pelote entre les crochets; prosternum mutique sans protubérance ou épine; sommet du vertex formant avec le front un angle plus ou moins droit. Front vertical ou subincliné. Elytres à champ scapulaire presque toujours irrégulièrement réticulé. Tibias postérieurs privés d'épine apicales sur le bord externe du dessous.

1. Pronotum à carène longitudinale presque nulle.
2. Sillon typique placé près du milieu. Sillon pectoral bien courbé. Elytres à nervules du champ discoïdal irrégulières et espacées. Carènes latérales du pronotum subnulles dans toute leur longueur. Fovéoles temporales courtes, basilaies. Eperons des tibias postérieurs longs et grêles. *Leptoscirtus*.

2¹. Sillon typique placé vers le tiers antérieur.

3. Eperons des tibias postérieurs plus courts que le premier article des tarses.

Sphingonotus.

- 3¹. Eperons des tibias postérieurs plus longs
que le premier article des tarses.

Leptopternis.

- 1¹. Pronotum à carène longitudinale médiane assez
haute, non interrompue par le sillon typique.

Heteropternis.

Tableau synoptique des espèces

Genre *Leptoscirtus* :

Deux espèces signalées en Egypte.

1. Dernier article des antennes un peu renflé, composé
de plusieurs articles fondus en un seul. Elytres étroites.
Fémurs postérieurs grêles et allongés.

L. Savignyi SAUSS.

- 1¹. Antennes annelées, plus longues d'un tiers que la
tête et le pronotum réunis. Fémurs postérieurs
assez élargis à la base, très grêles à l'apex.

L. aviculus SAUSS.

Genre *Leptopternis* :

1. Pronotum plus long que large, mélatzone rectangu-
laire. *L. canescens* SAUSS., (mâle).

- 1¹. Pronotum transverse, mélatzone anguleux, obtus,
arrondi postérieurement.

L. Rhamises SAUSS., (femelle).

Genre *Heteropternis* :

Une seule espèce.

H. Savignyi KRAUSS.

Genre *Sphingonotus* :

1. Ailes à partie basilaire hyaline ou teintée de bleu.
2. Ailes non fasciées, immaculées.
3. Ailes hyalines.
 4. Elytre à nervure intercalée plus rapprochée de la nervure radiale postérieure que de la nervure ulnaire.
Sph. Grobbeni WERN.
 5. Lobes réfléchis du pronotum avec deux bandes brunes.
Sph. Chakouri REHN.
 - 4¹. Elytre à nervure intercalée plus éloignée de la nervure radiale postérieure que de la nervure ulnaire.
Sph. niloticus SAUSS.
- 3¹. Ailes teintées de bleu.
Sph. cœrulans LINNÉ.
- 2¹. Ailes fasciées de noir ou noirâtre.
 3. Ailes hyalines. *Sph. Savignyi* SAUSS.
 - 3¹. Ailes teintées de bleu.
 4. Aile avec une très large bande dans son milieu et une petite bande anteapicale. *Sph. quadrifasciatus* Sp. Nov.
 - 4¹. Aile avec une bande de largeur moyenne dans son milieu:
Sph. azurescens RAMB.

- 1^a. Ailes à partie basilaire teintée de rouge ou de violet-rose.
2. Aile teintée d'un beau rouge vermillon avec une bande dans son milieu et une bande anteapicale de couleur brun-foncé.

Sph. octofasciatus SERV.

- 2^a. Aile teintée de violet-rose avec une bande noire très large.

Sph. bifasciatus SP. NOV.

Séance du 9 Octobre 1918

Présidence de M. le Dr LEWIS GOUGH

Communications

**The Identification
of the Orthoptera figured by Savigny,
and other Notes on Egyptian Orthoptera**

by G. STOREY, B.A., F.E.S.

When I read through the various lists of Egyptian Insects that have been published at different times I am frequently struck by the presence of the names of insects that have never been recorded from Egypt in recent times. Particularly is this the case with the Orthoptera the list of which is burdened by a large number of species vaguely recorded from "Egypt" by some early author and which have never been seen by Egyptian collectors since, and also by quite a number of species "described and known only from Savigny's figure". In the first place Savigny's figures include a number of species which are undoubtedly Syrian and which, although they may perhaps occur in Sinai, certainly do not occur in Egypt

proper; and secondly insects which occurred in the time of Savigny are likely to occur again and I believe that practically all Savigny's figures can be safely attributed to species that are well known at the present time.

Further in several cases different authorities have given different names to the same figure, and the lists of Werner and Innes contain several misprints which it might be well to point out.

In the present paper therefore I propose to attempt to throw light on some of these doubtful points and show how the figures given by Savigny fit in with our knowledge of Egyptian Orthoptera at the present time.

PLATE I.

Figs. 4 & 5. On the strength of these figures *Forficula auricularia* is definitely recorded as Egyptian by Innes. In view of the fact, however, that it is highly probable that the specimens figured came from Syria, the species should only be included in the Egyptian list with a query until there are further records.

Figs. 10-13 which represent *Sphodromantis bioculata* are put down by Innes by a slip as *Mantis religiosa*.

PLATE II.

Figs. 1. (1 & 2) were described by Saussure as *Eremiaphila nilotica*. Krauss retained the name. Werner sank it as a synonym of *E. khamsin*. Previously, however, Lefebvre had attributed these figures to *E. khralili* which Werner says is probably the male of *E. khamsin*. Finally in Innes' Monograph we find these figures attributed both to *E. nilotica*, which is sunk as

a probable synonym of *E. khamsin*, and to *E. khralili* which is kept distinct. I think it is fairly evident from this that the species figured is undoubtedly the abundant *E. khamsin* and that both *E. nilotica* Sauss. and *E. khralili* Lef. are synonyms of *E. khamsin*.

Fig. 2 was described by Lefebvre under the name of *E. anubis* separating it from *E. khamsin* by some slight differences in the markings on the back of the head. Saussure says the figure could be ascribed to his species *E. sabulosa* (which is regarded by Werner as a large variety of *E. khamsin*) except that it is too small. In Innes' Monograph the figure is put down in the literature under both *E. anubis* and *E. khralili*. The latter I think must be merely a clerical error, and in view of the fact that Saussure regards the insect figured as a small *E. sabulosa* and that Werner regards *E. sabulosa* as a large *E. khamsin*, I think again it is only reasonable to regard the insect figured as belonging like Figs. 1, 1 & 2, to the variable species *E. khamsin*, and to sink the name *E. anubis* as a synonym, or variety, of *E. khamsin*.

Fig. 6 was put down by Lefebvre as nymph of *E. zetterstedti*. Saussure considered it to be an adult insect and described it under the name of *E. brevipennis*. Krauss keeps this name but Werner sinks it as a synonym of *E. khamsin*. I think we may accept the latter's decision, in which case it appears that figures 1 (1 & 2), 2, and 6 of Plate II are all forms of *E. khamsin*.

Fig. 8 appears in Krauss' list as *Heterogamia syriaca*. Werner however puts it down as *H. ursina*.

Fig. 10 in the same way is *H. africana* according to Krauss, and *H. ursina* according to Werner, and

Fig. 11 is regarded by the former as *H. syriaca* and

by the latter as *H. africana*. I think we may accept the verdict of the more recent author in all three cases.

Fig. 13 was described by Krauss under the name of *Periplaneta savignyi* and up to the present remains unknown except from the figure. It certainly differs very distinctly from all known Egyptian species, but in view of the fact that it may quite probably be a Syrian species, the name should only be retained in the Egyptian list with a query.

PLATE III.

Fig. 5 is given in Krauss' list as *Gryllus ægyptiacus* de Haan. Werner sinks this name as a synonym of *G. domesticus* and I think we may accept this decision.

PLATE IV.

Fig. 1 is ascribed by Krauss to *Locusta viridissima* L. and by Werner to *L. baucheriana* Pictet. It is apparently not an Egyptian species.

PLATE V.

Fig. 6. Krauss retains Klug's name of *T. pharaonis* for this figure whereas Werner sinks it together with Klug's *T. grandis*, *T. variabilis*, *T. scalaris*, and *T. miniata*, as a synonym of *T. unguiculata*, another decision which I think we may safely accept.

PLATE VI.

Figs. 2 (1, 2 & 3) are put down by all authors up to the present as *Chrotogonus savignyi* Burm. "known only from Savigny's figure". An examination of these fig-

ures shows that they agree much more closely with an average specimen of the abundant local species commonly put down as *C. lugubris* than does Fig. 3 which is ascribed by the authorities with equal unanimity to the latter species. Figs. 2, 1, and 2, 2, are greatly enlarged, and the artist has for once failed to put natural size outlines alongside the drawings as is his usual custom. The fact, however, that he does put a natural size outline alongside Fig. 2, 3, which represents the same species, and that this agrees exactly in size with local specimens of *C. lugubris*, shows that the size is no distinction at all. In my mind there is no doubt whatever that these figures represent our common local species and if Werner and others are right in calling the latter *Chrotogonus lugubris*, then *C. savignyi* is merely a synonym of *C. lugubris*.

Fig. 2. 4, in spite of the fact that it represents a nymph which was evidently regarded by the artist as the same species as the last three figures, was described by Krauss as *C. blanchardi* which like *C. savignyi* is "known only from Savigny's figure". As a matter of fact the insect represented in the figure is not uncommon in places in the Fayum and Upper Egypt and probably elsewhere and has been recorded from the Nile valley by Bolivar and from Cairo by Rehn as *C. scuderi* Bol. and identified at South Kensington under this same name from specimens sent by the Ministry of Agriculture. As it always occurs amongst *C. lugubris*, from which it only differs in the white marks on the thorax, and as all degrees of intermediate varieties occur copulating freely with typical specimens, I think it is absolutely safe to say that we have only one species of *Chrotogonus* in Egypt, not four as given by Werner, and

that *C. savignyi*, and *C. blanchardi* and probably *C. scudderi* are synonyms of *C. lugubris*.

Fig. 5 is ascribed by Krauss to *Pyrgomorpha grylloides* Latr. Werner, however, on Vosseler's authority puts it down as *P. cognata* Krauss, although he himself regards the common species, which we all know, as *P. grylloides*. Rehn identified specimens sent him by Chakour as *P. cognata*. Werner, however, says that Egyptian specimens differ from Greek specimens of this latter species. It is noticeable that no one records both species and I think everyone will agree that, although some authorities give it one name and some another, we have only one species of *Pyrgomorpha* in Egypt. As Werner is probably more familiar with material from this part of the world than Rehn I further think that we should accept his decision and regard our local specimens, and also Savigny's figure, as *P. grylloides*.

Fig. 6 is put down by Werner as *Chrotogonus lugubris*. As the insect figured, however, is *Opsomala cylindrica*, this is obviously only a clerical error.

Fig. 9 was described by Krauss under the name of *Duronia savignyi*. Werner does not mention *D. savignyi* in his list of Egyptian Orthoptera but records *D. fracta*, which is not included in the list of species figured by Savigny as given by Krauss. It looks probable, therefore, that Savigny's and Werner's species are really the same.

Figs. 15, 1, 2, and 3, show two insects (male and female) in resting position and a female with the wings spread. Savigny evidently regarded the three specimens as belonging to a single species. Krauss, however, described Fig. 15, 3, the female with its wings spread, under the name of *Ochrophlebia? savignyi*. Werner intro-

duces fresh confusion firstly, by putting down "Fig. 15" as belonging to this species whereas it is only Fig. 15, 3 which was described by Krauss as such, and secondly by attributing the species definitely to the genus *Ochrophlebia* whereas Krauss only does so with a query. *Ochrophlebia ? savignyi* still remains "known only from Savigny's figure". If however, one compares the figure with one of the very light green specimens of *Epacromia thalassina* F., almost devoid of markings, that are at least as common as the brown forms, one fails to find any reason for disagreeing with Savigny in regarding Fig. 15, 3 as the same species as Figs. 15, 1 and 15, 2. In others words *Ochrophlebia ? savignyi* should be sunk as a synonym of *Epacromia thalassina*.

Fig. 16. On reading through Werner's list of Egyptian Orthoptera one can hardly fail to be struck by the juxtaposition of the names *Epacromia strepens* Latr. and *Heteropternis savignyi* Krauss. The former according to Werner is an abundant species all over Egypt but is not included amongst Savigny's figures. This seems rather extraordinary as Savigny did not make a habit of overlooking common species. *Heteropternis savignyi* on the other hand, which was described by Krauss from Savigny's figure, is, like *Ochrophlebia savignyi* "known only from Savigny's figure". However, an examination of the figure reveals no essential difference between it and an absolutely typical *Epacromia strepens*. The name *Heteropternis savignyi* must therefore go also.

PLATE VII.

Fig. 3 appears in Werners's list as both *Euprepoc-*

nemis plorans and *Acridium ægyptium*. The latter is, of course, a clerical error.

Fig. 9 is given by Krauss and Werner as *Sphingonotus balteatus* Serv., Innes, however, has recently decided that our Egyptian species is distinct from *S. balteatus* and has described it under the name of *S. bifasciatus*.

Figs. 10, 1 and 2 are doubtfully attributed by Krauss to *S. caeruleans* L. Werner says of this figure that according to Vosseler it is *S. mecheriæ* Krauss which up to the present is known only from Algeria and Tunis but which might possibly occur in Egypt. Personally I can see no difference between the figures and some of the darker specimens of the common species we call *S. caeruleans*. However, there seems to be considerable differences between the dark and the light forms of this species in the size of the eyes and the length of the elytra and it is possible, though I think not probable, that there are really two species here.

Fig. 14. The abundant species figured here has had a variety of names given to it. Krauss called it *Acrotylus insubricus* Scop. Werner said that it was not *insubricus* but *patruelis* Sturm. Still more recently, however, Rehn on the authority of Karny says that Werner is wrong and the species is really *A. versicolor* Burr.

The complete list of insects figured by Savigny thus becomes :

Forficulidae

Labidura riparia Pallas, I, 1, 2, 3, 7.

Anisolabis annulipes Lucas, I, 6.

Forficula auricularia L. I, 4, 5. Probably not Egyptian.

Blattidae

- Phyllodromia germanica* L. II, 20, 21.
Phyllodromia supellectilium Serv. II, 19.
Periplaneta americana L. II, 16, 17, 18.
Periplaneta savignyi Krauss. II, 13. Doubtfully Egyptian.
Stylopyga orientalis L. II, 14, 15.
Heterogamia aegyptiaca L. II, 9, 12.
Heterogamia africana L. II, 7, 11.
Heterogamia ursina Burm. II, 8, 10,

Mantidae

- Heteronytarsus aegyptiacus* Lef. II, 5,
Eremiaphila khamsin Lef. II, 1, 2, 6.
Eremiaphila savignyi Lef. II, 3.
Eremiaphila hebraica Lef. II, 4. Possibly not Egyptian.
Sphodromantis bioculata Burm. I, 10, 11, 12, 13.
Fischeria baetica Ramb. I, 14.
Miomantis savignyi Sauss. I, 15.
Ameles nana Charp. I, 16. Not Egyptian.
Empusa egena Charp. I, 8.
Blepharis mendica F. I, 9.

Gryllidae

- Gryllotalpa vulgaris* Latr. var. *cophtha* de Haan, III, 3.
Tridactylus savignyi Guér. III, 1, i.
Tridactylus savignyi var. *fasciatus* Guér. III, 2.
Tridactylus variegatus Latr. III, 1, ii.
Liogryllus bimaculatus de Geér. III, 4.
Gryllus domesticus L. III, 5.
Gryllus burdigalensis Latr. var. *cerisyi* Serv. III, 6.
Gryllus algirius Sauss, III, 7.

Locustidae

- Decticus albifrons* F. III, 8. Not Egyptian.
Platycleis affinis Fieber. III, 9.
Platycleis intermedia Serv. III, 10.
Locusta vaucheriana Pictet. IV, 1. Not Egyptian.
Xiphidium aethiopicum Thb. IV, 2, 3.
Conocephalus mandibularis Charp. IV, 4.
Diogena fausta Burm. IV, 5.
Tylopsis liliifolia F. IV, 6, 7.
Acrometopa syriaca Brunn. IV, 8, 10. Not Egyptian.
Isophya savignyi Brunn. IV, 9. Not Egyptian.
Saga ornata Burm. IV, 11. Not Egyptian.

Acridiidae

- Paratettix meridionalis* Ramb. V, 1, 2.
Tryxalis nasuta L. V, 3, 4, 5, 7.
Tryxalis unguiculata Ramb. V, 6, 8, 9, 10, 11, 12, 13, 14.
Oxycoryphus compressicornis Latr. VI, 10.
Duronia savignyi Krauss (? = *fracta* Fieb.) VI, 9.
Ochrilidia tibialis Fieb. VI, 7.
Stauronotus genei Ocsk. VI, 17, 18.
Stauronotus maroccanus Thb. VI, 19. Probably not Egyptian.
Stenobothrus pulvinatus F. de W. VI, 8. Probably not Egyptian.
Stethophyma turcomanum F. de W. VI, 13, 14. Probably not Egyptian.
Epacromia thalassina F. VI, 15.
Epacromia strepens Latr. VI, 16.
Sphingonotus caerulans L. VII, 11 and (? 10.)
Sphingonotus azureus Ramb. VII, 12.

- Sphingonotus bifasciatus* Innes. VII, 9.
Sphingonotus savignyi Sauss. VII, 13.
Leptopternis rhamses Sauss. VII, 15.
Leptoscutus linearis Burm. VI, 1.
Acrotylus versicolor Burr. VII, 14.
Oedipoda gratiosa Serv. VII, 7.
Pachytylus danicus L. VI, 11, 12.
Eremobia cisti F. VII, 16.
Pyrgomorpha grylloides Latr. VI, 5.
Chrotogonus lugubris Blanch. VI, 2, 3.
Poecilocerus bufonius Klug. VI, 4.
Pamphagus galericulatus Stål. VII, 17. Not Egyptian.
Pamphagus zebratus Brunn. VII, 18.
Dericorys albidula Serv. VI, 20.
Opsomala cylindrica Marsch. VI, 6.
Acridium aegyptium L. VII, 2.
Schistocerca peregrina Ol. VII, 1.
Caloptenus italicus L. VII, 4.
Thisoicetrus littoralis Ramb. VII, 5.
Thisoicetrus adpersus Redt. VII, 6.
Euprepocnemis plorans Charp. VII, 3.

In the second half of this paper I propose to draw attention to a number of insects whose names have appeared in lists of "Egyptian" Orthoptera owing in all probability to insufficient accuracy in the definition of the term "Egypt". As a political unit it has varied considerably at different times. Geographically it has only one boundary which is properly defined - the Northern. Popularly the term is taken to mean the Delta and the Nile Valley north of Assuan. For faunistic purposes one must add to the popular conception of Egypt the

coastal district west of Alexandria and a strip of desert on each side of the Nile valley. If one accepts the term in its present political sense, one includes four areas which faunistically differ very considerably from Egypt proper, namely Sinai, the Red Sea coast, the district between Assuan and Wady Halfa, and the neighbourhood of Sollum. I should therefore suggest that for faunistic purposes Egypt should be defined as being bounded on the North by the Mediterranean Sea; on the East by the Suez Canal and a line running mid-way between the Red Sea and the Nile Valley; on the South by the latitude of Assuan; and on the West by a line running west of the Oases of Dakhla and Siwa up to Mersa Matruh. Species taken outside these boundaries should never be recorded vaguely as "Egyptian", and if they are included in lists of Egyptian insects their localities should be accurately stated.

If this judgment is accepted the following species included by Werner and Innes in their lists of Egyptian Orthoptera, should not be recorded as Egyptian until confirmatory records are produced, as in most cases the old records almost certainly refer to districts outside Egypt proper as defined above.

Nauphoeta cinerea Burm. This is essentially a tropical species and Brunner's specimens, on the strength of which the species has been called Egyptian, were almost certainly taken south of Assuan.

Holocompsa fulva Burm. Brunner records this species from Khartum, and although Burmeister's specimens were labelled "Egypt", they also were probably taken South of Assuan.

Perisphaeria unicolor Burm. The same may be said of this species as was said above of *Nauphoeta cinerea*.

Eremiaphila klunzingeri Werner. Recorded only from the Red Sea Coast.

Eremiaphila dawydowi Werner. Recorded only from Wady el Begga.

Eremiaphila audouini Lef. Recorded only from "the desert near Suez". This may mean Egypt proper or perhaps Sinai.

Eremiaphila genei Lef. This species was described by Lefebvre from specimens from Syria. Saussure records it vaguely from "Egypt", but as apparently his description does not agree with that of Lefebvre, it appears to be doubtful not only where his specimens came from, but also whether they are *E. genei* at all. There does not therefore seem to be sufficient justification for continuing to regard this species as Egyptian.

Eremiaphila zetterstedti Lef. The same may be said of this as of *E. audouini*.

Poecilocerus hieroglyphicus Klug. This species is not uncommon in Nubia but I know of no records as far north as Assuan except Brunner's from Cairo, which is so incredible that it merely throws doubt on his other records several of which are questioned elsewhere in this paper.

Acridium ruficorne Burm. Recorded vaguely from Egypt by Brunner. It is just barely possible that strag-

glers of this species occasionally reach Egypt but it is much more probable that Brunner's specimens like so many others of his came from south of Assuan.

Acridium aeruginosum Burm. The chances of this species having been taken in Egypt proper are considerably less than those of the last.

Thamnotrizon punctifrons Burm. Recorded vaguely from "Egypt" by Brunner; otherwise known from Syria. Probably another example of Brunner's wide interpretation of the term "Egypt".

Homoeogryllus reticulatus F. Recorded by Brunner from "Egypt" and by Saussure from "Upper Egypt". It is possible that this species occurs this side of Assuan but exceedingly unlikely, and probably both these records are really from Nubia or the Sudan.

*
* *

Finally there are several cases in addition to those mentioned in discussing Savigny's figures, in which a single species is still recorded under two names:

Phyllodromia treitliana Werner and
Phyllodromia angustefasciata Werner.

The latter of these two species was described from a nymph differing from the former species in having two black lines on the thorax similar to those of *P. germanica*. In December 1915 we found large numbers of *P. treitliana* adults and *P. angustefasciata* nymphs living together on sugar-cane, when it became perfectly

clear that the latter species is merely the nymph of the former, the characteristic black lines of *P. angustefasciata* disappearing with the last moult.

Miomantis savignyi Sauss.

Miomantis pharaonica Sauss.

The descriptions of the females given by Saussure show only very slight, and possibly imaginary, differences in the shape of the elytra and wings. The descriptions of the males are very inadequate and quite incomparable. It is noticeable that Innes in his monograph gives no key for the differentiation of the two species. Most local collectors have a long series under the name *Miomantis savignyi* and no specimens of *M. pharaonica*. Rehn, however, records the latter species from Chakour's collection and not the former, although all the specimens in Chakour's collection belong to the same species as those in the other local collections. Werner appears to have regarded as the distinguishing feature of *M. pharaonica* the presence of black spots on the anterior femur. According to Saussure, however, they are not always present in that species, and an examination of a series of *M. savignyi* shows that these black spots are present in more than half of the specimens, so that it is obvious that this is no distinction at all. No one except Saussure records two species of *Miomantis* from Egypt and although some authorities give it one name and some the other I am convinced that we have only one species. Unfortunately the question can only be definitely settled by an examination of Saussure's types if they are still in existence.

Empusa stolli Sauss.

Empusa egenä Charp.

The case of these two species is very similar to that of the last two. Krauss and Werner both call the *Empusa* figured by Savigny *E. egenä*, and on the authority of the latter most local collectors have their specimens labelled with this name. Saussure, however, records *E. stolli* from Egypt, and La Baume gave this name to a specimen from the Collection of the Ministry of Agriculture which as a matter of fact agrees exactly with Savigny's figure. In the descriptions there is nothing whatever to distinguish the two species and that of *E. stolli* is particularly inadequate. In view, therefore, of the fact that no one person records both *E. egenä* and *E. stolli*, it seems fairly certain that the records of both refer to a single species and that either the two names are synonymous or one of the names, probably *E. stolli*, is wrongly applied to Egyptian specimens. As a matter of fact there is a second species of *Empusa* in Egypt, of which there are three specimens in the collection of the Ministry of Agriculture, but it is definitely neither of the above species as it has no foliaceous appendages on the intermediate and posterior tibiae.

Dericorys albidula Serv.

Dericorys millieri Bonnet and Finot.

It seems to me very probable that here again we have Krauss and Werner giving one name, and Rehn another to the same species. Specimens from the coast usually have reddish wings while those from the desert have colourless ones, I can detect no other difference,

however, and I do not think this slight colour difference can be regarded as of specific value.

Sphingonotus lameerei Finot.

Sphingonotus quadrifasciatus Innes.

The species identified by Rehn under the former name is regarded by Innes as specifically distinct and has been described by him under the latter name. The name *S. lameerei* Finot must therefore be dropped from the list of Egyptian Orthoptera.

SUMMARY

In the foregoing pages arguments have been brought forward for the removal of the following names from the list of Egyptian Orthoptera (defining Egypt as above) on account of synonymy, misidentification, or too wide an interpretation of the term "Egypt".

Forficula auricularia L.

Phyllodromia angustefasciata Werner.

Periplaneta savignyi Krauss.

Nauphoeta cinerea Ol.

Holocompsa fulva Burm.

Perisphaeria unicolor Burm.

Eremiaphila klunzingeri Werner.

Eremiaphila dawydowi Werner.

Eremiaphila hebraica Lef.

Eremiaphila audouini Lef.

Eremiaphila genei Lef.
Eremiaphila zetterstedti Lef.
Eremiaphila anubis Lef.
Eremiaphila khralili Lef.
Eremiaphila nilotica Sauss.
Eremiaphila brevipennis Sauss.
Miomantis pharaonica Sauss.
Empusa stolli Sauss.
Tryxalis pharaonis Klug.
Heteropternis savignyi Krauss.
Sphingonotus lameerei Finot.
Sphingonotus balteatus Serv.
Acrotylus patruelis Sturm.
Poecilocerus hieroglyphicus Klug.
Pyrgomorpha cognata Krauss.
Chrotogonus savignyi Burm.
Chrotogonus blanchardi Krauss.
Chrotogonus scudderi Bol.
Duronia savignyi Krauss.
Ochrophlebia savignyi Krauss.
Dericorys millieri Bonnet and Finot.
Acridium ruficorne Burm.
Acridium aeruginosum Burm.
Thamnotrizon punctifrons Burm.
Locusta vaucheriana Pictet.
Gryllus aegyptiacus de Haan.
Homoeogryllus reticulatus F.

In conclusion I should like to say that in the Collection of the Ministry of Agriculture there are the following species still unidentified, most if not all of which are new to Egypt:

From Egypt proper:

- 1 Phasmid
- 3 Mantids
- 3 Gryllids
- 3 Acridiids

From Sinai:

- 1 Mantid
- 1 Locustid

From Sollum:

- 1 Acridiid

Also from pomegranates imported from Cyprus:

Forficula smyrnensis Serv.

Forficula aetolica Brunn.

LITERATURE

referred to above

- SAVIGNY. — Plates of Orthoptera in Description de l'Egypte 1809-1813.
- KLUG. — Orthoptera in Hemprich and Ehrenberg's Symbolæ Physicæ 1828-1845.
- KRAUSS — Erklärung der Orthopterentafeln J.C. Savigny's in der Description de l'Egypte—Verh. Zool. bot. Ges., Wien, 1890.
- WERNER — Orthopterenfauna Aegyptens—Sitzungsverh. Kaiserl. Akad. Wissenschaften, Wien, 1905.
- INNES — Révision des Orthoptères de l'Egypte — Mem. Soc. Ent. d'Egypte, 1912.

REHN — Records of Egyptian Orthoptera — Bull. Soc. Ent. d'Égypte, 1912.

INNES — Exposé synoptique des espèces égyptiennes du genre *Sphingonotus* et des petits genres voisins — Bull. Soc. Ent. d'Égypte 1918.

Further Notes

on an *Ephestia*, an insect injurious to stored dates in Khargeh Oasis ⁽¹⁾

by L. H. GOUGH, Ph, D., F.E.S.

In continuation of the work done in 1917 at Khargeh Oasis in connection with Date-Worm I proceeded to Khargeh this year, during the Bairam, to complete the investigation.

It had been found in 1917, that the date-worm ⁽²⁾ moth does not usually attack the Saidi date as long as the date is still attached to the fruiting stem. On the other hand a very large proportion of the fruit fallen off the fruiting branches into the straw receptacle placed around the ripening bunches was found to be infested with worms. For this reason the following recomman-

(1) See *Bull. Soc. Entom. d'Égypte*, 1917, p. 133.

(2) This insect has since been identified by Mr. Durrant as *Ephestia calidella* GUEN.

tions were made, (Notes on an *Ephestia*, an Insect injurious to stored dates in Khargeh Oasis, Bull. Soc. Entom., Cairo, 1918, p. 138-139) as applicable to the Oasis *Ephestia*.

Where semidry dates are grown for packing and export as at Khargeh and Dakleh increased profit might be obtained by grading the dates in two qualities, using only such dates as are still attached to the fruiting branches as first quality, for export for the European market at Cairo or in Europe; those found in the wrappings around the branches as second quality.

a) The first quality semidry dates would require to be packed immediately, either in cardboard boxes or else in the extremely attractive baskets made in the Oasis. In either case they should be treated sulphur dioxide immediately after packing, in order to kill any eggs which might have been laid on them, and they should then be repacked at once in larger moth proof crates or boxes for exportation.

b) The second quality semidry dates could be made into *agwa* (pressed dates) as is done at present. Most of the *larvae* are killed during the pounding that takes place in the manufacture of the *agwa*.

The present year's work was confined to the testing of the recommendations. It was not considered necessary to go over old ground again.

As fumigation of the dates was considered to be as important as selection, a fumigation box was made and sent in advance to Khargeh; it measures 2 m. \times 1 m. \times 1 m., one end is made to come off and when in position is held by hooks.

Six tiers of trays run on ledges inside the box,

standing 15 cm apart. The trays are of *qafas* work, 1 m. 70 c. m. long \times 1 m. broad. A small stove, made of sheet iron and clay can be placed inside the fumigation box in the space of 30 c.m. left by trays (the trays being only 170 c.m. long, the box 200 c.m.). A small door in the movable end of the box serves to facilitate introducing the stove after packing has been completed.

For the purposes of the experiment 140 lbs ($= 4 \frac{1}{3}$ webea) of Saidi dates were purchased. All the loose dates were placed on one side as second quality. The ripe and semi-ripe dates which were found to be still attached to the fruiting stalks were carefully picked, and packed without further selection partly in 1 lb. cartons of the Western Oasis Co, kindly presented us for this purpose by Mr Wright, partly in small baskets made of palm-leaves of a capacity of about $2 \frac{1}{2}$ lbs.

After packing, and without any concious selection, half of the boxes, and baskets were placed in the fumigated box, half stored away without further treatment as controls.

After all the cartons and baskets intended for fumigation had been placed inside the box, and the end had been fixed in position, a charcoal fire was lit in the stove and the stove was introduced into the box. Sulphur was then thrown on the fire and the box was shut up and left closed for about 12 hours.

(N. B. - The charcoal fire was probably not necessary, but it increased rate of burning of the sulphur, and contributed to produce a dense atmosphere of sulphur fumes more quickly).

Of course in commercial practice it would not be

necessary to elaborate a fumigation box of this kind. Any small room with close fitting door and shutters could be made to serve the purpose.

The following results were obtained on examination of the dates two weeks after treatment (this period was chosen as dateworm of 10-14 days old are not likely to be overlooked, a longer period would have resulted in *pupae* or moths only being found. Eggs require 4 days to hatch). In examining each date was cut open and carefully scrutinised for worms and for excrements.

FIRST QUALITY DATES

	Total number of dates	Sound dates	Traces of worms	Dates containing living worms	Dates containing dead worms
Fumigated	623	614	5	1	3 *
Not Fumigated..	631	439	163	29	—

SECOND QUALITY DATES

Fumigated	154	93	30	3	10
Not Fumigated..	154	48	82	24	—

* Under 2 mm. long. These worms would not have been found by a casual observer.

It will be seen that the superiority of selected dates over not selected was great, and that fumigation greatly improved the keeping of both grades.

It will be further seen that a single date-worm in packed dates destroys more than one date in the course of its life-time; this is very obvious to the observer examining the dates, on account of the varying sizes of the *excrementa* found in the fruit.

The first quality fumigated dates were, as expected, almost free from worms. All five dates showing traces were in the same box as the living worm. The living worm itself may have got into the carton after fumigation, as the two lots of first quality dates had to travel to Cairo packed in the same box.

Fumigation in this manner does not affect the texture, colour or flavour of the dates in any way.

The cost of fumigation would be practically nothing in peace-time, when sulphur only costs P.T. 1-2 per kg. We used 200 grs per fumigation, peace price 2-4 milliemes. At war prices, with sulphur costing P.T. 24 per kg., the cost would work out about P.T. 5 per operation. But this distributes itself over about lbs 340 of dates if packed in cartons, or lbs 1100 if packed in baskets. This works out at 0.15 milliemes per lb. packed in cartons or 0.05 milliemes per lb. packed in baskets. Thus it will be seen that the fumigation adds practically nothing to the price.

The cost of packing in the cartons would not be higher than used to be paid by the Western Oasis Company, packing in 2 1/2 lbs. baskets would actually be cheaper. This cost need not be considered as rendering

treatment more expensive, as the fruit has to be packed in any case, or treated for *agwa*.

It may be objected that utilising only the first quality dates for careful packing the second quality would raise the initial cost of the fruit. Against this may be placed, that the fallen fruit would be made into *agwa*, as is the present practice, and consequently would not be lost. We bought the dates we used from a grower at the rate of P. T. 64 per wheba, (= 60 rotolis). As we only required a small portion of the fallen fruit for our controls, we resold all the remainder of the fallen dates to the original vender at the price of P. T. 60 per wheba, at a loss of P. T. 4 per 60 lbs, from which it is evident that the Oasis native considers the fallen dates to be at least as good as the still attached fruit.

One modification in existing practice would become necessary. The bunches would have to be cut earlier than is now done. The present rule is to cut when all the date have fully ripened. At this moment more than three quarters will have fallen. Bunches should be selected for cutting when about one third are still yellow. Most of the yellow ones, especially those that have commenced to soften will ripen after packing. The fallen fruit ought at this stage of ripeness to form only a small proportion of the ripe dates.

This year's crop has been a failure in Khargeh Oasis, it is estimated as being only 5% of the normal, or less. For example Mustafa Bey, the Omdeh of Khargeh has only 15 fruiting trees out of 400.

Desiccation of some of the wells is without doubt

causing a gradual and steady reduction in the number of bearing trees, this year's fail crop is however not entirely attributable to this cause. It is not due to insect or fungoid disease.

During the examination it was repeatedly observed that certain of the dates had been pierced by the rough grass forming the wrappings. A better form of packing would be advisable.

The following additional biological notes may be recorded.

There can be no doubt that eggs are laid on the hanging fruit, as well as on the fallen fruit in the wrappings. This is evident from the infestation of first selection dates in the experiment, and from the beneficial effect of fumigation on such dates. The four dead worms found were, judging by their size, only just hatched, and were killed before they were a day old.

On page 140 of the paper quoted above. I drew attention to a resemblance in the life-history of the Date-Worm and of the Pink Boll Worm. It was stated that both species were propagated during part of the year by short-cycle generations, by the means of which the numbers were rapidly increased, whilst they rely on long-cycle *larvae* to carry the species over from one year to the other. I can now add that specimens isolated in October 1917 as *larvae*, were emerging as adults in the middle of September 1918, having withstood the heat of the summer without change as *larvae*. Yet in an experiment made in February 1918, in which date-worms were placed in the incubator room at 37°C, there was no difficulty inducing worms to complete their life-cycles within a short time. This contradic-

tory behaviour in reaction to heat is worthy of note. The date-worm may be a favourable subject for experiment on the causation of long-cycle development, as it is more easily handled and bred than *Gelechia*, and it may be made to throw light on the most puzzling phase in the life-history of that insect.

DATE - WORKS

Said

First Quality Dates

Fumigated	Total Number	Sound	WORMS		
			Traces of Worms	Living	Dead
Packed in Cartons					
1	24	24	0	0	0
2	24	24	0	0	0
3	23	23	0	0	0
4	28	28	0	0	0
5	28	28	0	0	0
6	26	26	0	0	0
7	28	28	0	0	0
8	24	24	0	0	0
9	25	25	0	0	0
10	28	28	0	0	0
11	26	26	0	0	0
12	22	16	4	1	1
Packed in Baskets					
1	62	62	0	0	0
2	61	61	0	0	0
3	56	55	1 *	0	0
4	61	60	0	0	1 *
5	68	67	0	0	1 *
TOTAL	623	614	5	1	3 *

Second Quality Dates

Fumigated

Packed in Cartons					
1	25	17	4	0	4
2	26	11	11	2	2
3	25	15	9	0	1
4	26	21	3	0	2
5	26	16	5	0	5
6	26	13	7	1	5
TOTAL	154	93	39	3	10

* Worms very young, would not have been observed if a lens had been used.

* The pupae were invariably outside the dates.

PERIMENT

tes

First Quality Dates Control

Tot figated	Total Number	Sound	W O R M S			Remarks
			Traces of Worms	Living	Dead	
In Cartons						
1	26	26	0	0	0	
2	28	19	8	1	0	
3	26	13	10	3	0	1 pupa
4	28	19	7	2	0	
5	28	24	4	0	0	
6	26	14	8	4	0	
7	28	28	2	2	0	1 pupa *
8	22	8	13	1	0	
9	26	20	5	1	0	1 pupa *
10	24	22	1	1	0	
11	28	18	6	4	0	
12	24	15	7	2	0	1 pupa *
In Baskets						
1	86	63	21	2	0	
2	74	47	25	2	0	
3	60	42	17	1	0	
4	56	32	21	3	0	
5	41	33	8	0	0	
TOTAL	631	439	163	29	0	4 pupae *

Second Quality Dates Not Fumigated

In Cartons						
1	25	2	21	2	0	
2	27	5	16	6	0	
3	25	9	11	5	0	
4	26	6	15	5	0	
5	26	13	10	3	0	
6	25	13	9	3	0	
TOTAL	154	48	82	24	0	

used in examining the dates.

Séance du 13 Novembre 1918

Présidence de M. le Dr LEWIS H. GOUGH

Nominations :

Sur la proposition de M. SAID BAHGHAT et de M. ANASTASE ALFIERI, M. MOHAMED AZIZ FIKRY est nommé membre titulaire.

Communications

Preliminary Note

on the infestation of *Hibiscus esculentus*
pods by the Pink Boll Worm
by L. H. GOUGH, Ph. D., F.E.S.

In a paper entitled The Pink Boll Worm (Journ. Agric. Research 1917), Mr. Busck disputes the occurrence of *Gelechia gossypiella* on any other plant than on cotton, in spite of the fact that many references by other workers of its observed occurrence on other food-plants must have been known to him. Busck's state-

ments have been accepted as correct by the U. S. authorities when constructing their anti-*Gelechia* legislation in connection with the recent outbreak in Texas. This legislation prohibits the growing of cotton in a belt extending around the known focus of *Gelechia* infestation. (1)

In Egypt since the earliest days of the study of *Gelechia*, we have never been in any doubt about the occurrence of *Gelechia* on other host plants than cotton, and we have known that the degree of infestation can occasionally be quite considerable.

The occurrence of *Gelechia* on *bahmia* (*H. esculentus*) and *til* (*H. cannabinus*) has no economic importance for Egypt, and for this reason no great stress has been laid on this aspect of the *Gelechia* problem by workers in Egypt, yet Mr. Willcocks in his monograph on *Gelechia* gave considerable figures to show that these two plants are affected to an appreciable extent.

The whole question has however received additional importance, since in the American legislation no attempt is made to prohibit the growing of okroes (more familiar to us here as *bahmia*), which vegetable is grown in the Southern states of the U. S. A.

We have consequently made an effort to collect sufficient material and on a scale whose size will exclude all possibility of question.

The results of our examination are tabulated below :

(1) More recently Hunter (*Journal of Economic Entomology*, Vol. 12, p. 173) states that Busck has found *Gelechia gossypiella* larvae on Hollyhock and *bahmia* in Texas — 16. VII. 19, 1., H. G.

TABLE I

Showing the percentage of infestation at various periods
of 1918

Date	Number of <i>Bahmia</i> pods examined	% infested with <i>Gelechia</i> larvae	% infested with <i>Earias</i> larvae
July 30	1000	0	+
Aug. 10	800	0	+
Aug. 27	1000	0	+
Oct. 4	1000	3	2
Oct. 8	1200	9	1
Oct. 10	950	16	7
Nov. 5	110	14	7

It will be seen that determined by the presence of larvae in *bahmia* pods, quite a considerable infestation can be demonstrated.

We have however found it necessary to get emergence records, as Mr. Busck seems to doubt that *Gelechia* larvae can become fully fed, pupate and emerge as adults if fed on plants other than cotton. For this reason large numbers of *bahmia* and *til* pods have been collected and placed in cages. The experiment has only been running for three weeks, but the results are al-

ready sufficiently convincing to demonstrate that *bahmia* and *til* pods collected in the field are naturally infested to quite an appreciable extent, and are a sufficiently important source of food to *Gelechia* to render any legislation defective which prescribes cotton free zones without reference to the *bahmia* (or okroes) and *til* grown in the zone.

and seeds.			nabinus.		
750 green pods collected 5. 10. 18 1000 green pods collected 14. 10. 18 The figures have been combined for the purposes of this table.			8000 green pods collected 13. 10. 18		
500 Dry Pods collected 15. 10. 18.		Seeds received 19. 2. 18			
Date	Number of Moths emerged	Date	Number of Moths emerged	Date	Number of Moths emerged
October		October		October	
25 }	2	20	1	27	7
26 }		21	2	28	18
27	7	25 }	1	29	30
28	9	26 }	1	30	40
29	14	27	1	31	14
30	21	28	0		
31	8	29	1	November	
		30	3	1 }	17
November		31	2	2 }	3
			0	3	1
		November		4	1
		1 }	3	5	0
	18	2 }	1	6	9
	4	3	0	7	0
	6	4	0	8	0
	9	5	0	9	0
	6	6	0	10	0
	10	7	0	11	0
	10	8	0	12	0
	10	9	0		
	3	10	0		
	1	11	0		
	5	12	0		

Keys for the Determination of Egyptian Mosquitoes and their Larvae.

by G. STOREY, B.A., F.E.S.

The Entomological Section of the Ministry of Agriculture is at present carrying out a Survey of the Mosquitoes of Egypt at the request of the Anti-Malaria Commission. A certain amount of work has already been done, a total of eighteen species having been dealt with in the adult stage, and all but one of them in the larval and pupal stages. The publication of keys for the determination of these species may therefore be of use, both to other Entomologists working in this country by enabling them to identify the mosquitoes they find, and to ourselves should any species not included in our list be discovered and reported to us.

In the following pages are given three keys :

- 1, for the determination of adult mosquitoes from easily visible external characters ;
- 2, for the determination of the various species of the genus *Culex* by means of the male genitalia ; and
- 3, for the determination of the larvae by easily visible characters.

I append also a complete list of the species recorded from Egypt up to date,

1. - Key for the Determination of Adult Mosquitoes from easily visible external Characters.

This key is not based scientifically on the characters which separate genera, which are often very minute and difficult to see or only present in one sex, but is based on the most obvious external characters which are present in both sexes. For using this key an examination of the insect with an ordinary pocket lens is all that is required.

1. Wings distinctly spotted along the costa 2
Wing not spotted along the costa. 4

2. Tarsi banded, abdomen with lateral tufts

Anopheles pharoensis

Tarsi unbanded, abdomen without lateral tufts . 3

3. Palps dark-tipped *Anopheles turkhudi*

Palps white-tipped *Anopheles palestinensis*

4. Last two joints of hind tarsi completely white, wings conspicuously dark along the costa

Anopheles mauritanus

At most one joint of the hind tarsi completely white, wings not conspicuously dark along the costa 5

5. Hind tarsi banded. 6

Hind tarsi not banded. 10

6. Thorax and abdomen adorned with patches of silver scales *Stegomyia fasciata*

- Thorax and abdomen without silver scales. 7
7. Scales of wings broad, some light, some dark. 8
Scales of wings, narrow, unicolorous. 9
8. Abdomen uniformly clothed with pale scales
Ochlerotatus longisquamosus
- Abdomen with a pair of dark spots on each segment
Ochlerotatus dorsalis
9. Thorax with three narrow longitudinal pale stripes
Theobaldia longiareolata
- Thorax dark rich brown with a broad transverse
golden band (when fresh) *Culex quasigelidus*
10. Thorax with a silver stripe on each side from the
neck to the base of the wing
Uranotænia unguiculata
- Thorax not so marked. 11
11. Thorax with a light grey central area bordered on
each side by dark brown *Anopheles bifurcatus*
- Thorax not so marked. 12
12. Hind tibiae with distinct longitudinal white stripes
on the sides *Culex theileri*
- Hind tibiae without white stripes. 13
13. Hind tibiae distinctly speckled
Ochlerotatus nemorosus
- Hind tibiae not speckled. 14
14. Abdomen without bands of pale scales, with or
without lateral spots, small species. 15
Abdomen distinctly banded 16
15. Abdomen very dark with lateral basal spots on each

segment, distinct in male, frequently indistinct in female. *Culex pusillus*

Abdomen lighter without any pale markings

Culex invidiosus

16. Abdomen brown with creamy bands, thorax red brown above, yellowish beneath. *Culex pipiens*

Abdomen blackish with distinct white bands . 17

17. Pleurae with patches of pale scales; hind tibiae and femora with distinct whitish knee spots

Culex decens

Pleurae without pale scales; knee spots indistinct particularly on femora.

Culex sp. N° 2518 (Coll. Min. Agr.)

2. - Key for the Determination of Egyptian species
of the genus *Culex*
by means of the male genitalia.

Owing to the great difficulty of separating with certainty the different species of the genus *Culex* by means of their external characters the following key is given for the benefit of those who are energetic enough to make the necessary preparations of the male genitalia.

Edwards says (Bull. Entom. Research, Vol. IV, 1913, p. 54): "In mounting genitalia I find it advantageous to use the following method. The tip of the abdomen is snipped off with a pair of sharp pointed scissors and

placed in 10 % caustic potash, which is then just brought to the boil. The specimen is then washed well with water, transferred to absolute alcohol for two or three minutes, thence to clove oil, where the hypopygium is separated from the terminal abdominal segments, and is then transferred to a drop of stiff Canada Balsam on a small strip of transparent celluloid, without any cover-slip, which is placed on the pin below the stage bearing the insect from which the genitalia were removed. The hypopygium should be carefully adjusted when placed in balsam, so that good dorsal and ventral views can be obtained either for examination or for drawing. If this is not done, however, it is quite easy to remount the specimen at any time."

Personally I follow the first part of this method but find it more convenient to mount the hypopygia in the ordinary way on microscope slides. Edward's method achieves its object of keeping the genitalia together with the insect to which they belong which is very necessary in a big museum where hundreds of species are dealt with and some of them are only represented by one or two specimens. In Egypt, however, where the number of species is very limited, only gross carelessness can lead to the mixing up of the genitalia of one species with the insects of another, and the method I have adopted is to take from a bred series of specimens which obviously belong to one species several of both sexes to put in the collection and several males from which to make preparations of the genitalia which I mount, from three to six at a time, on microscope slides. Preparations made in this way are much more convenient to examine under the microscope than those prepared according to Ed-

wards' instructions, and if fairly thick Balsam is used the different parts of the hypopygium are not unduly displaced by the pressure of the cover-slip.

For the use of the following key preparations of the genitalia should be made as described above and examined under a microscope provided with $2/3$ and $1/6$ inch objectives. The genitalia of *Culex decens* and *C. invidiosus* are apparently indistinguishable.

1. Harpagones consisting of a single narrow piece passing from the base to just beyond the crowns of spines on the end of the harpes, then turning outwards almost at right angles *Culex pusillus*.

Harpagones not of such shape, not passing beyond the crowns of the spines on the ends of the harpes 2

2. Harpes with a basal projection 3
- Harpes without a basal projection 5

3. First division of harpagones with a large right-angled projection at the top and a number of small teeth below. Second divisions straight and parallel to one another . *Culex* sp. N° 2518

First division of harpagones not so constructed, second divisions divergent. 4

4. First divisions of harpagones with three large terminal teeth and a basal projection rounded at the end *Culex theileri*

First divisions of harpagones with several small ill-defined teeth at the apex and a large broad, bilobed basal projection *Culex decens*
Culex invidiosus

5. First divisions of harpagones consisting of straight pieces with parallel sides and a blunt end.

Culex pipiens.

Harpagones with several small teeth at the tip and a broad semicircular expansion below them.

Culex quasigelidus.

3. - Key for the Determination of the larvae of Egyptian Mosquitoes

In the preparation of this key characters have been chosen as far as possible with a view to making it possible to identify the larvae with the naked eye or at most with a pocket lens. However the characters dividing the different species, particularly those of the genus *Anopheles*, are often so small that they can only be seen with difficulty with the highest-powered pocket lens. Between *Anopheles turkhudi* and *Anopheles palestinensis* I can detect no difference, nor between *Ochlerotatus dorsalis* and *Ochlerotatus longisquamosus*. In both these cases it is possible that the latter species is only a variety of the former. The larvae of *Culex decens* and *C. invidiosus*, like the genitalia of these species, are also indistinguishable. The larva of *Ochlerotatus nemorosus* I have not seen, nor do I know of any description of it.

1. Siphon absent, resting position horizontal . . . 2
Siphon present, resting position vertical or obli-

- que. 5
2. Antenna with tuft on shaft
Anopheles mauritianus.
- Antenna without tuft on shaft. 3
3. Head blackish and small
Anopheles turkhudi
Anopheles palestinensis
- Head not blackish (in last stage) and larger. . . 4
4. Prothorax with a large tubercle on each side of
centre carrying a pair of stout, much branched,
subequal hairs
Anopheles pharoensis
- Prothorax with a tubercle on each side of centre
carrying a single branched hair with a much
smaller branched hair situated at a short distance
from the base
Anopheles bifurcatus.
5. Siphon short, length less than twice the breadth
at base 6
- Siphon long or moderately so, length at least twice
the breadth at base 7
6. Head black and very small by comparison with
body; very large species
Theobaldia longiareolata
- Head not black, larger in comparison, smaller
species, only in "domestic" water
Stegomyia fasciata.
7. Antennae without conspicuous hair tufts; siphons
of medium length, i.e. about three times as long
as broad 8
- Antennae large with conspicuous hair tufts; si-
phons of medium length or long 9

8. Head black, small species

Uranotaenia unguiculata.

- Head not black, fairly large species

Ochlerotatus dorsalis

Ochlerotatus longisquamosus.

9. Siphon at least six times as long as broad

Culex decens

Culex invidiosus

- Siphon less than six times as long as broad. . 10

10. Siphon hardly exceeding three times breadth at base, small species *Culex pusillus.*

- Siphon four or five times as long as broad. . 11

11. Large pale species with very prominent antennae and siphon nearly as long as in *C. invidiosus.*

Culex theileri.

- Medium-sized species with shorter siphons . . 12

12. Siphon with at least six tufts of hair of medium length *Culex* sp. N° 2518

- Siphon with less than six tufts of hair. 13

13. Antennae black at the tip; tufts of hair on siphon long *Culex quasigelidus.*

- Antennae unicolorous; tufts of hair on siphon of medium length. *Culex pipiens.*

The species referred to in the above keys are the following:

1. *Anopheles bifurcatus* L.

This species was described from Egypt under the name of *A. antennatus* by Becker in 1903. Since then it has not been recorded from this country though it is sufficiently abundant just over the Palestine border and almost certainly occurs in Northern Sinai.

The adult is very like a Culicine in general colouring and appearance, but the shape of the body and the long palps of the female make its identity clear. It is apparently one of the very worst malaria carriers.

2. *Anopheles turkhudi* Liston.

The lengthy synonymy of this species was worked out by Gough in his Preliminary Notes on Egyptian Mosquitoes (Bull. Entom. Research, V, 1914, p. 133). It is *par excellence* the malaria carrier of Egypt and is widely distributed and often abundant. Although it is common in the Canal Zone it does not seem to occur commonly along the coast. It is particularly abundant in the oases.

The larvae, which can generally be distinguished by their grey colour and small dark heads, are particularly fond of drains where there is a slight flow of water with a fairly liberal supply of salt.

3. *Anopheles palestinensis* Theo.

Considerable confusion exists as to the synonymy of the species referred to under this name. Gough in his Preliminary Notes on Egyptian Mosquitoes sank

Pyretophorus palestinensis (Palestine and Cyprus) together with *Pyretophorus sergenti* Theo. (Algeria) as a synonym of *A. culicifacies* Giles (India). Edwards, however, after examining the type of *P. palestinensis* states that it is certainly not synonymous with *A. culicifacies*, but is nearly allied to *A. turkhudi* and perhaps a variety of it. On the other hand he retains *P. sergenti* as a synonym of *A. culicifacies*. Theobald in his original descriptions distinguishes *sergenti* from *palestinensis* by the fork-cells being unequal or approximately equal. Of three specimens from Siwa Oasis in the Ministry of Agriculture's Collection, all obviously belonging to one species, two have the fork-cells equal, one unequal. It is obvious therefore that Theobald's distinction is valueless and it seems to me probable that *A. sergenti* is probably the same as *A. palestinensis* and not, as Edwards says the same as *A. culicifacies*. If this is so the name *A. palestinensis* must be replaced by *A. sergenti* but in view of the doubt on this point I prefer to retain the former name for the present.

The species very closely resembles *A. turkhudi*, from which it only differs in the absence of black tips to the palps and in being on the average slightly smaller. I have been unable to detect any difference either in the larvae or in the male genitalia, and as pointed out by Edwards it may really only be a variety of *A. turkhudi*. This question, however, might perhaps be better studied in Palestine where the species is commoner, as in Egypt it has so far only been recorded from the oases with the exception of one specimen from Helwan which was bred among several hundred *turkhudi*.

4. *Anopheles mauritianus* Grandpré.

This very distinctly-marked species was until recently only known from the coastal area spreading inland as far as Damanhur, Mansura, and Qantara. Recently, however, we have had specimens from Embaba and Maadi and so its range may be much wider than was previously thought.

Research in other countries has fairly definitely acquitted it of the charge of carrying malaria.

5. *Anopheles pharoensis* Theo.

This is perhaps the most widely distributed Anopheline in Egypt, occurring all over the country though never in the abundance to which *A. turkhudi* attains in its favourite haunts. The larvae are not so fond either of salt water or of running water as those of *A. turkhudi* and are to be looked for more in the kind of situation one generally regards as a Culicine breeding ground. It is very frequently found in company with *Culex invidiosus* and *C. decens*. The adult invades houses freely and is very noticeable with its spotted wings and banded legs. It is a savage biter but if it carries malaria at all, which seems to be doubtful, it certainly only does so very rarely.

6. *Stegomyia fasciata* F.

The "yellow fever mosquito" is not very abundant in Egypt as a general rule but seems to appear with astonishing quickness in most parts of the larger towns if vessels of water are left lying about in houses. A very favourite breeding situation is the water in the small

dishes used for isolating tables or meat-safes against ants. It apparently never breeds away from human habitations. The adult bites freely at all hours of the day and the beauty of its prettily striped body hardly compensates for the irritation it causes which is considerably worse than that caused by a *Culex*.

7. *Ochlerotatus dorsalis* Meigen.

Unlike the last species, *Ochlerotatus dorsalis* is never found inside houses in the larval stage and comparatively rarely in the adult stage. It is the species which occurs in immense swarms in the neighbourhood of salty or brackish marshes on the edge of the desert, but it also breeds freely in infiltration water and stagnant pools. The adult bites freely at all hours of the day but is particularly fierce about sunset. It is one of the commonest species all over Egypt.

Grabhamia pulcripalpis Rond., recorded from Egypt by Theobald, and *Taeniorhynchus africana*, described from Egypt by Neveu Lemaire, are synonyms of this species. Gough sank *O. dorsalis* as a synonym of *O. ægypti* but Edwards considers that Linnaeus' *Culex ægypti* is probably a *Stegomyia* and so in view of the uncertainty I have readopted the name of *O. dorsalis* for this species.

8. *Ochlerotatus longisquamosus* Theo.

In the Oases of Kharga and Dakhla the common *Ochlerotatus* differs from *O. dorsalis* in having the abdomen uniformly covered with pale scales and in being on the average a trifle larger. This may be a local variety of the latter species but there is little doubt

that it is the form described by Theobald as *Grabhamia longisquama* and referred to by Edwards under the name *Ochlerotatus longisquamosus*. The male genitalia and the larvae are, so far as I can see, indistinguishable from those of *O. dorsalis*.

9. *Ochlerotatus nemorosus* Meigen.

Up to the present this species has only been recorded from the Mariut district and from Tina on the Suez Canal. At first sight, being a brown mosquito devoid of any conspicuous markings, it gives the appearance of a *Culex*. The scales of the wings, however, distinguish it at once on closer examination. The adult, which so far has only been taken in Spring and very probably only occurs at that period of the year, bites freely during the day time like the other members of the genus.

10. *Theobaldia longiareolata* Macq.

Previous records of this species have all been made under the name of *Theobaldia spathipalpis* Rond. However as there seems to be little doubt about the identity of Macquart's species, his name, being the earlier, must replace Rondani's.

Theobaldia longiareolata is our largest mosquito. The larva seems to prefer stagnant or even stinking puddles and is generally in large numbers wherever it is found. The adult is to be seen chiefly in the winter and seems to be nearly if not quite absent between July and November when most other species reach their maximum. It is occasionally to be seen in houses but rarely bites human beings. It is sometimes stated that it never bites

but this is not true as I have known it do so on two or three occasions.

11. *Culex quasigelidus* Theo.

Being the only Egyptian *Culex* with banded legs or proboscis, *Culex quasigelidus* is an unmistakeable species even when the characteristic golden band across the hinder part of the thorax has been rubbed off. It is distinctly one of the rarer species though it seems to be widely distributed.

12. *Culex theileri* Theo.

This is a large pale species, immediately distinguishable from every other Egyptian mosquito by the stripes on the sides of the femora and tibiae. It was first found in the Oases where it is one of the commonest species. It seems to be widely distributed but not very common in the rest of Egypt. The larva likes clean fresh water and does not object to a slight current. Like the adult it is large and its long siphon, broad head, and very bushy antennae make its identification easy.

13. *Culex pusillus* Macq.

Macquart's original description of *Culex pusillus* is so inadequate that Edwards declared himself in favour of dropping the name altogether, as apparently up to the present no specimens have been recorded since the original ones (from Egypt) from which the description was made. We have, however, in Egypt an otherwise nameless species which the description fits very well

and as it fits no other Egyptian species there can be little doubt about the correctness of the identification.

It is a small stumpy species, very dark in general colour, particularly on the abdomen. In the female the small triangular white patches on the sides of the abdomen, distinguish the species at once but in the male these are often hardly visible with the result that the insect appears to be a dark *C. invidiosus*. The genitalia, however, are very distinct from those of the other species. The larva is at once distinguishable by its short siphon. The species is widely distributed and often common where it occurs but it seems to be rather local.

14. *Culex pipiens* L.

The overwhelming majority of the mosquitoes taken in houses in Egypt belong to the cosmopolitan species *Culex pipiens*, although taking the country as a whole *Culex invidiosus* and *Ochlerotatus dorsalis* must be very nearly if not quite as numerous. Very nearly 100 % of the mosquitoes that breed in cess-pools are *Culex pipiens* and it is very far from particular in its taste, breeding in the most filthy water and in almost pure water. It does not seem, however, to like salty or brackish water and in general prefers to be in the proximity of human habitations.

It is far from easy at first to distinguish this species from the following three, and the only really certain way is to examine the male genitalia which are absolutely distinct. After some practice one can usually spot *Culex pipiens* by the very distinctly yellowish colour of the pleuræ.

15. *Culex invidiosus* Theo.

Culex invidiosus is undoubtedly the commonest mosquito in what one may call "field water", that is to say infiltration water, puddles caused by the leakage of irrigation water, stagnant canals and drains, and so on. It is distinctly smaller than *C. pipiens*, the pleuræ are generally pale with a distinct greenish tinge, and the abdominal segments have no pale scales on the upper side. The segments are, however, bordered with a fringe of pale hairs which sometimes gives a banded appearance and causes the insect to be mistaken for *C. pipiens*. The resemblance of the male genitalia, the larvæ and the habits of this species to those of the next leads one to wonder whether the two may not really be varieties of a single species in spite of the colour differences in the adult. However, as these differences are very great and there seem to be no intermediates it seems to be wise to keep them separate for the present.

16. *Culex decens* Theo.

This species was recorded by Gough under the name of *C. pallidocephalus* Theo, with the description of which it agrees very fairly well. Recently, however, Austen has recorded it as *C. ? decens* Theo. On investigating the matter I found that according to Edwards *C. decens* and *C. invidiosus* are indistinguishable in their larvæ and genitalia. As this was what I had already found to be the case with *C. invidiosus* and the species which we had previously called *C. pallidocephalus*, and as our specimens had the distinctive patches of pale scales on the pleuræ which are given in Theobald's description of

C. decens and are not referred to in his description of *C. pallidocephalus*, I feel quite certain that our species is *C. decens*. Whether it is also *C. pallidocephalus*, that is to say, whether *C. decens* and *C. pallidocephalus* are synonymous, I am not quite sure. Edwards figures the genitalia of *C. pallidocephalus*, but unfortunately in the specimen from which the figure was made the parts were badly misplaced in the process of mounting, with the result that the figure is not comparable with his figures of the genitalia of other species. He gives a few details in which the genitalia differ from those of *C. decens* and *C. invidiosus* but these are very small and may only be varietal and not specific. Unfortunately the larva of *C. pallidocephalus* does not seem to have been described.

The specimens recorded by Gough as *C. quasimodestus* Theo. also were almost certainly varieties of this species with the pale markings on the thorax more than usually pronounced.

C. decens occurs in exactly the same situations as *C. invidiosus* but is considerably less common.

17. *Culex* sp. N° 2518 (Coll. Min. Agr.)

In the neighbourhood of Alexandria occurs quite commonly a species of *Culex* differing from *C. decens* in having no patches of pale scales on the pleuræ, whiter bands on the abdomen, and much less conspicuous knee-spots. The male genitalia and larvæ are quite distinct from those of any of the other species mentioned in this paper. So far I have been unable to find a description which fits this insect. It is certainly new to Africa and I think

probably new to Science but I have hesitated to describe it as I have not the complete literature of the European mosquitoes available. Now that the war is over it may be possible at no distant date to get the opinion of a more competent authority than myself.

18. *Uranotaenia unguiculata* Edwards.

Although not previously recorded from Egypt this species is widely distributed and often quite common, showing a preference for permanent ponds as breeding places but occurring also quite freely in infiltration water. Very little is known of the habits of the adult and it does not appear to enter houses very freely. Its small size and prettily marked thorax make it quite impossible to confuse it with any other species.

*
* *

In addition to the above the following species have been recorded or described from Egypt by various authors. None of them occur in any of the collections I have seen and I think that there is considerable doubt as to the identity or identification of the species in every case.

19. *Anopheles maculipennis* Meigen.

Recorded by Ross from the Suez Canal Zone. It has never been seen since although during the war a considerable number of R.A.M.C. officers have been collecting mosquitoes in this district. It is possible that the record is correct but I am inclined to think it is a mistake though I am not prepared to suggest what the

mistake may have been. The nearest species in the above list is *A. bifurcatus* from which it differs in having spots on the wings formed by the aggregation of scales.

20. *Anopheles squamosa* Theo.

Recorded by Theobald from specimens said to have been taken by Willcocks at Kafr el Dawar. I have examined the whole of Willcocks' collection with the exception of the representative specimens he sent to Theobald for determination. It contains no *A. squamosa* but does contain *A. pharoensis* from Kafr el Dawar, and I feel convinced that the specimens recorded by Theobald really belonged to the latter species. They had probably been damaged in the post in such a way that the distinguishing features were no longer visible.

21. *Anopheles maculicosta* Becker

Described from Egypt in 1903. Edwards says, "I am inclined to think that *A. maculicosta* was described from a small rather worn specimen of *A. pharoensis*". From my own experience I unhesitatingly endorse this opinion. Among the specimens of *A. pharoensis* I have seen there has been considerable variation, but I have seen no specimen belonging to the sub-genus *Cellia* which could not be referred safely to this species.

22. *Stegomyia sugens* Wied.

Included by Gough in his Preliminary Notes on Egyptian Mosquitoes with the note, "Possibly this species is not Egyptian, as the original record (Nubia, 1828) may have referred to what is now known as the Sudan"

Edwards, however, in a later paper (Bull. Entom. Research, Vol. VII, 1917, p. 210) says, "It is impossible to say from the description what Wiedemann's *C. sugens* really was but if the type could be found it might prove to be a rubbed *S. fasciata*". In any case no useful purpose is served by retaining this name in a list of Egyptian mosquitoes.

23. *Culex fatigans* Wied.

Recorded from Egypt by Ross, Theobald, Gough, and many others. According to Edwards, "This species is difficult to distinguish from *C. pipiens* until the male genitalia are examined and mounted properly; when this is done, however, the differentiation is easy." Gough tried to differentiate the two species by the differences in the lengths of the fork-cells given by Theobald. This distinction, however, is valueless and all Gough's specimens were *C. pipiens*. Presumably Theobald's own records were based on the same distinction and are likewise invalid. On what characters other observers have based their identifications I do not know but there is no evidence that any one of them has examined the genitalia of the specimens he labelled *C. fatigans*, and without this I do not consider any record of this species as valid. Personally I have examined the genitalia of a large number of mosquitoes of this group from many parts of Egypt but have not found a single *C. fatigans* amongst them. Any of the mosquitoes recorded under this name that were not *C. pipiens* were probably either *C. decens* or *C. sp. N° 2518*.

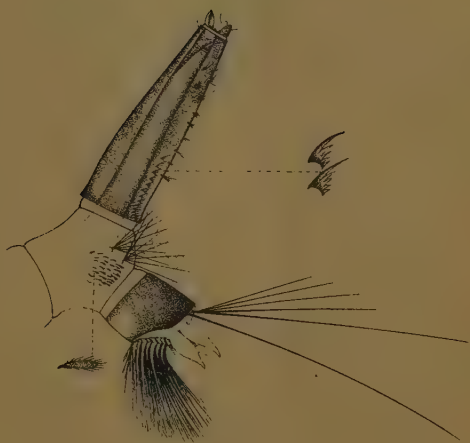


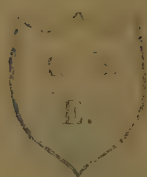
Reproduced by the Survey of Egypt 1919. (18/1057)

Culex Sp. no 2518 (Coll. Min. Agr.)

Hassan Raouf del.







24. *Culex longefurcatus* Becker.

Described from Egypt in 1903. Edwards remarks about this species, "In his description Becker says, 'One sees no trace of scaling on the whole body.' The name had therefore better be dropped altogether."

25. *Culex pallipes* Macq., *nec.* Meig.

Described from Egypt in 1838. The only Egyptian mosquito which the description fits is *C. invidiosus*, in view of the utter inadequacy of the description, however, it would perhaps be rather a rash step to give the name priority over one that is well established.

In conclusion I should like to ask for the cooperation of any other entomologists working on mosquitoes in this country, particularly during the coming year, and to express my great indebtedness to Major E. E. Austen, Major R. Fowler, Mr. G. W. Gibson, Dr. L. H. Gough, Major C. P. Thomson, Mr. F. C. Willcocks and Capt. K. B. Williamson for notes and material already received.

EXPLANATION OF PLATE I

Basal parts of hypopygium from above, highly magnified, and right side-piece of hypopygium, inner side-view, enlargement about half that of the basal parts; a, unci: b, supplementary and c, second divisions of the harpagones; d, harpes with crowns of spines e, basal projection of the harpes.

Séance du 27 Décembre 1918

Présidence de M. JOSEPH JULLIEN

Nominations :

1^o Sur la proposition de M. SAID BAHGHAT et de M. ANASTASE ALFIERI, M. HUSSEIN SABET est nommé membre titulaire.

2^o Sur la proposition de M. MOHAMED ZAKI et de M. NEGUIB ISKANDAR, M. IBRAHIM BICHARA est nommé membre associé.

Election du Bureau pour l'année 1919

Sont nommés Président : M. le Dr L. H. GOUGH ;
Vice-Président : M. GILBERT STOREY ; Secrétaire Général : M. le Dr WALTER INNES BEY ; Secrétaire-adjoint : M. ANASTASE ALFIERI ; Trésorier-Bibliothécaire : M. RICHARD WILKINSON.

BULLETIN

REVUE DE LA SOCIÉTÉ ENTOMOLOGIQUE D'ÉGYPTE

FONDÉE LE 1^{er} AOUT 1907

*Fatti non foste a viver come bruti,
Ma per seguir virtude e conoscenza*
DANTE



Sa Hautesse le Sultan Fouad I^{er} a daigné prendre la Société
sous son Haut Patronage

Année 1918

1^{er} et 2^{me} FASCICULES : JANVIER-JUIN

LE CAIRE
IMPRIMERIE PAUL BARBEY
1918

SOMMAIRE

	Page
Membres du Bureau pour 1918.....	5
Liste des Membres de la Société en 1918.....	5
Séance du 16 Janvier 1918 :	
MAURICE PIC : Espèces, sous-espèces et variétés.....	16
MAURICE PIC : Habitats et notes concernant divers Coléoptères égyptiens.....	19
Séance du 6 Février 1918 :	
M ^{re} G. FERRANTE : Notes entomologiques.....	22
Séance du 6 Mars 1918 :	
R.P. LONGIN NAVAS : Névroptères d'Égypte.....	24
M ^{re} GIOVANNI FERRANTE : Notes entomologiques.....	29
Séance du 10 Avril 1918 :	
BRONISLAW DĘBSKI : Liste des Cécidies d'Égypte.....	31
Séance du 15 Mai 1918 :	
G. STOREY : Note on <i>Euproctis susanna</i> Stgr., a Lymantriid new for Egypt, with a description of the previously unknown larva.....	32
Collembola or Springtails injuring Cotton.....	34

La Société Entomologique d'Égypte tient ses séances le premier mercredi de chaque mois (excepté Juillet, Août et Septembre) à 6 heures p.m., dans la Salle de l'Institut Égyptien.

Elle a déjà publié :

Bulletins 1908	4 fascicules	} Prix P.T. 10 le fascicule
» 1909	4 »	
» 1910	4 »	
» 1911	4 »	
» 1912	4 »	
» 1913	4 »	
» 1914-15	1 fascicule	Prix P.T. 40
» 1916	4 fascicules	Prix P.T. 10 le fascicule
» 1917	4 fascicules	Prix P.T. 10 »
» 1918	1 fascicule	Prix P.T. 20

Mémoires Vol. 1 — fasc. 1 — Révision des *Chrysidides* de l'Égypte, par Robert du Buysson, 1908.

Prix P.T. 80

fasc. 2 — Révision des *Mutillides* de l'Égypte, par Ernest André, 1910.

Prix P.T. 80

fasc. 3 — Révision des Orthoptères de l'Égypte, 1^{re} partie : *Forficulides*, *Blattides*, *Mantides*, par le Dr W. Innes Bey, 1912.

Prix P.T. 80

Les **Bulletins** et les fascicules des **Mémoires** de la Société sont en vente chez M. le Bibliothécaire de la Société. — Boite Postale N° 430. — Le Caire.

Pour la correspondance scientifique, réclamations et changement d'adresse, s'adresser à M. le Secrétaire Général de la Société Entomologique d'Égypte.

Boite Postale N° 430. — Le Caire

BULLETIN
DE LA
SOCIÉTÉ ENTOMOLOGIQUE
D'ÉGYPTE

FONDÉE LE 1^{er} AOUT 1907

*Fatti non foste a viver come bruti,
Ma per seguir virtude e conoscenza*

DANTE



Sa Hautesse le Sultan Fouad I^{er} a daigné prendre la Société
sous son Haut Patronage

Année 1918

3^{me} FASCICULE : JUILLET-AOUT

LE CAIRE

IMPRIMERIE PAUL BARBEY

1919

SOMMAIRE

Page

Séance du 12 Juin 1918 :

- D^r W. INNES BEY : Exposé synoptique des espèces égyptiennes du genre *Sphingonotus* et des petits genres voisins..... 37

Séance du 9 Octobre 1918 :

- G. STOREY B.A., F.E.S. : The Identification of the Orthoptera figured by Savigny, and other Notes on Egyptian Orthoptera..... 49
- L. H. GOUGH, Ph. D., F.E.S. : Further Notes on an *Ephestia*, an insect injurious to stored dates in Khargeh Oasis..... 68

La Société Entomologique d'Égypte tient ses séances le premier mercredi de chaque mois (excepté Juillet, Août et Septembre) à 6 heures p.m., dans la Salle de l'Institut Egyptien.

Elle a déjà publié :

Bulletins	1908	4 fascicules	} Prix P.T. 10 le fascicule
»	1909	4 »	
»	1910	4 »	
»	1911	4 »	
»	1912	4 »	
»	1913	4 »	} Prix P.T. 40
»	1914-15	1 fascicule	
»	1916	4 fascicules	
»	1917	4 fascicules	
»	1918	1 fascicule	
»	1918	1 fascicule	Prix P.T. 10 le fascicule

Mémoires Vol. 1 — fasc. 1 — Révision des *Chrysidides* de l'Égypte, par Robert du Buysson, 1908.

Prix P.T. 80

fasc. 2 — Révision des *Mutillides* de l'Égypte, par Ernest André, 1909.

Prix P.T. 80

fasc. 3 — Révision des Orthoptères de l'Égypte, 1^{re} partie : *Forficulides*, *Blattides*, *Mantides*, par le D^r W. Innes Bey, 1912.

Prix P.T. 80

fasc. 4 — Liste des Cécidies d'Égypte, par le D^r Bronislaw Dębski, 1918.

Prix P.T. 40.

Les **Bulletins** et les fascicules des **Mémoires** de la Société sont en vente chez M. le Bibliothécaire de la Société. — Boite Postale N^o 430. — Le Caire.

Pour la correspondance scientifique, réclamations et changement d'adresse, s'adresser à M. le Secrétaire Général de la Société Entomologique d'Égypte.

Boite Postale N^o 430. — Le Caire

E & A

Inscr 1917-18

IMP. BU

30 DEC 19

ENTOM

BULLETIN

DE LA

SOCIÉTÉ ENTOMOLOGIQUE

D'ÉGYPTE

FONDÉE LE 1^{er} AOUT 1907

*Fatti non foste a viver come bruti,
Ma per seguir virtude e conoscenza*

DANTE



Sa Hautesse le Sultan Fouad I^{er} a daigné prendre la Société
sous son Haut Patronage

Année 1918

4^{me} FASCICULE : SEPTEMBRE-DÉCEMBRE

reiner

LE CAIRE

IMPRIMERIE PAUL BARBEY

1919

SOMMAIRE

Page

Séance du 13 Novembre 1918 :

L. H. GOUGH Ph. D., F.E.S. : Preliminary Note on the infestation of <i>Hibiscus esculentus</i> pods by the Pink Boll Worm.....	79
G. STOREY, B.A., F.E.S. : Keys for the Determination of Egyptian Mosquitoes and their Larvae (avec 2 planches)	84

Séance du 27 Décembre 1918 :

Election du Bureau pour 1919	106
------------------------------------	-----

Table alphabétique par noms d'auteurs

Notes de l'Edition.

Table des Espèces et Variétés Nouvelles décrites dans ce volume.

La Société Entomologique d'Égypte tient ses séances le premier mercredi de chaque mois (excepté Juillet, Août et Septembre) à 6 heures p.m., dans la Salle de l'Institut Egyptien.

Elle a déjà publié :

Bulletins 1908	4 fascicules	} Prix P.T. 10 le fascicule
» 1909	4 »	
» 1910	4 »	
» 1911	4 »	
» 1912	4 »	
» 1913	4 »	} Prix P.T. 40
» 1914-15	1 fascicule	
» 1916	4 fascicules	
» 1917	4 fascicules	
» 1918	1 fascicule	
» 1918	2 fascicules	Prix P.T. 10 le fascicule

Mémoires Vol. 1 — fasc. 1 — Révision des *Chrysidides* de l'Égypte, par Robert du Buysson, 1908.

Prix P.T. 80

fasc. 2 — Révision des *Mutillides* de l'Égypte, par Ernest André, 1910.

Prix P.T. 80

fasc. 3 — Révision des Orthoptères de l'Égypte, 1^{re} partie : *Forficulides*, *Blattides*, *Mantides*, par le Dr W. Innes Bey, 1912.

Prix P.T. 80

fasc. 4 — Liste des Cécidies d'Égypte, par le Dr Bronislaw Dębski, 1918.

Prix P.T. 40.

Les **Bulletins** et les fascicules des **Mémoires** de la **Société** sont en vente chez M. le Bibliothécaire de la Société. — Boîte Postale N° 430. — Le Caire.

Pour la correspondance scientifique, réclamations et changement d'adresse, s'adresser à M. le Secrétaire Général de la Société Entomologique d'Égypte.

Boîte Postale N° 430. — Le Caire